

Aspects of the Atlantic Greater Amberjack Fishery Through 1998

By

Nancie J. Cummings
and
David B. McClellan

*U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Southeast Fisheries Science Center
75 Virginia Beach Drive
Miami, Florida 33149 USA*

July 1999

Sustainable Fisheries Division Contribution No. SFD 98/99-61

Introduction

Berry and Burch (1978), Burch (1979), and Parrack (1993a,b) described the fishery background and biological information for the U.S. Atlantic greater amberjack, *Seriola dumerili* fisheries through 1992. These reports documented commercial and recreational amberjack fisheries of the western central Atlantic area, noted the explosive increases of commercial landings off south Florida during the middle 1980's, and documented the lack of recorded information on the quantity of catch. Amberjacks, as food, were believed wasted or underutilized in many areas until the mid 1970-'s however, as the recognition of amberjack as a prized gamefish and the popularity of smoked amberjack grew among fishermen utilization of this species was enhanced. Recreational fishing for amberjacks from New York to Texas was known to have occurred at least since the early 1950s but mostly incidental to other species; amberjacks were not a target species until the 1970's. Amberjacks began to be targeted by private boat fishermen, who enjoyed spear fishing and jig fishing from wrecks, and by many charter boat for hire operators because of their aggressive fighting behavior when hooked (Berry and Burch 1978). According to early researchers charterboat vessels landed the majority of amberjack in many areas and headboat vessels traditionally landed less catch than either charterboat or private angler vessels.

Increasing amberjack catches during the late 1970's and increased food utilization of amberjacks prompted researchers to begin collection of fisheries statistics and biological samples. Berry and Burch provided landings data for the amberjack fisheries in Dade County, Florida and average annual size data for one year from charter vessel landings based on a report by Gentle (1977). Accurate reporting of catches continues to be hampered to this day by problems associated with proper identification in the field by recreational and commercial anglers, seafood buyers, and even among scientists for small fish. The historical commercial and recreational landings are thought to have been underestimated prior to the 1980's (Berry and Burch 1978). In fact, Berry and Burch estimated that the 1975 amberjack landings in the U.S., alone were 2.5 times, that reported by the Food and Agriculture Organization (FAO) Yearbook of Fishery Statistics for the entire western central Atlantic. Berry and Burch (1978) further noted that many recreational fishermen operators of rental vessels sold part or all of their amberjack catches, making it more difficult to accurately quantify historical catch levels. Hartig (1991) noted that under-reporting of commercial landings on the Florida East coast may have continued through the mid to late 1990's.

Parrack (1993a,b), Cummings and McClellan (1996, 1997), Potts et al. (1998), Cummings (1998) and Potts and Burton (1999) gave some information regarding the status of the Atlantic greater amberjack stock. Cummings and McClellan (1996) used Virtual Population Analysis (VPA) to estimate stock size levels, fishing mortality rates, and provided preliminary information on spawning stock biomass per recruit (SSR). Potts et al. (1998) and Potts and Burton (1999) gave an account of the fishery through 1996. Neither the Potts et al (1998) nor the Potts and Burton (1999) study is directly comparable with the Parrack (1993a,b), or the Cummings and McClellan (1996, 1997), or the Cummings (1998) study since the headboat fishery catch data for 1981 – 1985 was

not the same. Potts et al. (1998) estimated the headboat catch for 1981-1985 from their database whereas Cummings and McClellan (1996) used the combined charter/headboat catch estimates from the MRFSS survey. Therefore, the results of their analyses are not exactly comparable. The recent study that evaluated the stock status, Cummings and McClellan (1996, 1997), identified problems in the data regarding catch and landings data, available samples, and subsequent VPA analyses which reduced the overall confidence in the results and in providing reliable management advice. Future projections were not done because the confidence in the VPA results was low.

In this report the U.S. fishery commercial, recreational charter, private, shore, and headboat fishery statistics are updated for the Atlantic greater amberjack stock. The recent interim report for this stock presented data through the 1997 calendar year (Cummings 1998). Additional regulatory changes have occurred since the first stock evaluation and three more years of data are available to use in re-evaluating stock status exist. Amendment #9 to the Fishery Management Plan for the Snapper-Grouper Fishery (Amend. #9, SG-FMP enacted February 24 1999) 1) reduced the recreational bag limit from 3 to 1 fish per person per day; 2) restricted harvest and possession in excess of the bag limit during April in the federal EEZ; 3) prohibits sale of fish caught under the bag limit when the commercial fishery is closed; 4) set the fishing year as May 1 through April 30; 5) prohibited coring; and 6) established a commercial quota, retroactive to 1998, of 1,169,931 pounds (gutted weight) based on 63% of the 1995 landings.

Atlantic greater amberjack commercial landings, recreational and headboat catches, and observed size frequency samples are summarized through the 1998 calendar year and information is also summarized on a fishing year basis (i.e., May 1-April 30) through the 1997 fishing year. Because fishery managers will be making a transition from calendar year to fishing year management for this stock, selected summary information is provided in this report using in both calendar year and fishing year format. Information on recreational releases, not previously included in earlier reports is provided. Revised estimates of the catch at size and catch at age for the commercial, recreational, and headboat fisheries are presented that incorporate three additional years of data obtained since the Cummings and McClellan (1996) assessment. Catch at size estimation incorporated improvements in the procedures used to allocate catch samples to catches. The information presented herein provided the statistical database for subsequent analyses of the stock condition.

Materials and Methods

Commercial Landings and Recreational Catches

The sources of data for this study were identical to those of Parrack (1993a), Cummings and McClellan (1996, 1997), and Cummings (1998) and were described in detail in the 1993 and 1996 reports. Reported commercial landings are updated through December 1998, estimates of the recreational harvest catch (A+B1) and released catch (B2) from the Marine Recreational Fisheries Statistics Survey (MRFSS) survey were replaced in total from 1981 through 1998. Estimates of catch from the headboat fishery were replaced in

total using the NMFS Beaufort Laboratory Headboat Survey database, as in previous reports and these data were available through December 1997. Fishing year 1997 was incomplete for the headboat fishery catch database, as the last four months catch (January - April 1998) were not available. The headboat fishery catch (in numbers of fish) for January through April of 1998 was estimated by substituting the quantity of catch reported for January - April 1997. Where necessary, commercial landings were converted from gutted to whole weight units using the NMFS conversion factor of 1.04 (Guy Davenport pers. comm.).

Commercial landings data and recreational catches were apportioned into Gulf Vs Atlantic stock units using the rationale prescribed in Parrack (1993a, b), continued in Cummings and McClellan (1996) and Cummings (1998). An important change in the Florida statistical landings occurred since the 1996 analysis. Previously, Florida's commercial landings data as obtained through the National Marine Fisheries Service (NMFS) General Canvas Landings Reporting System (GCLRS), existed in two format types: 1) since 1962 one landing record per year, month, dealer, and county of landing or 2) since about 1977 one landing record per year, dealer, gear and NMFS Statistical Shrimp Grid (proxy for area of capture). For this study and in Cummings (1998) the 1997 and 1998 Florida landings General Canvas data contained all of these attributes recorded on each record (year, month, county landed, dealer, gear, and NMFS area of capture). The effect of this change in the Florida commercial data is that the area and gear of capture are no longer assigned by NMFS port agents to the monthly landings data because gear and area information is recorded on the at the trip level for all finfish landed in Florida. The additional information should improve the area caught and gear resolution in basic data.

As in the previous Cummings and McClellan (1996) and Cummings (1998) reports, estimates of recreational catch of Atlantic greater amberjack from the MRFSS survey represent revised estimates as of May 1995, with the new estimates extended back in time to 1981. The catch estimates for 1979 and 1980 were not re-estimated by MRFSS and although 1979 and 1980 calendar years were included in the earlier Parrack (1993a,b) analyses, these years were excluded from the Cummings and McClellan (1996, 1997) and by Cummings (1998) analyses to maintain consistency in the estimates and are also excluded in this report and in subsequent analyses of the stock condition.

Estimation of Total Recreational and Commercial Catch at Size and At Age

The Atlantic greater amberjack stock length frequency sample database used by Cummings and McClellan (1996, 1997) was replaced completely. The distribution of the individual samples was considered with respect to temporal (year and month) and spatial (state and county) coverage for each of the main amberjack fisheries. The individual samples were pooled within specific fisheries (commercial handline, commercial dive, commercial bottom longline, commercial other (trap, fish trawl, seine), recreational (charter, private, shore), and headboat and the annual yearly length density was matched to the corresponding catch (recreational estimate) or to a yield (commercial). Where a sufficient number of observations ($n > 100$) existed and the length frequency distribution did not appear skewed, samples were matched at the year, state, and gear level. Lack of

sufficient samples at the monthly level precluded including month as a stratification level into the assignment of catch samples for any fishery. For each commercial landing, the sample average weight was divided into the reported yield in pounds to give an estimate of total catch in numbers. The estimated total numbers caught was apportioned over length according to the pooled length frequency sample. Weight length equation parameters were those developed by Burch (1979) for the Atlantic Ocean greater amberjack (W (lbs.) = $6.40 * 10^{-5} * \text{fork length (mm)}^{** 2.842}$; $n = 191$ fish in the sample ranging in size from 350 mm to 1,400 mm).

The resulting densities of catch at size were converted into densities of catch at age using an inverted growth equation. Annual age length keys do not exist for this stock for use in converting catch at length densities into catch at age densities. For the purposes of computing age, the time of spawning (birthdate) and the approximate time of laying down annuli (marking) were assumed to occur at the same time of the year (March to April) based on information on growth and reproductive condition obtained from the literature. The growth studies of Burch (1979) and Manooch and Potts (1997) both indicated that annuli were formed during the spring months from March through April, in greater amberjack and Burch also showed that gonad development was maximum around this same time. There is no new information to refute the Burch study.

The growth equation parameters used to convert length densities to age densities, those of Manooch and Potts (1997) were the same values as used in the previous 1996 assessment however the information was preliminary at the time of the 1996 assessment and not in the published literature ($k = 0.115$, $L\text{-infinity} = 1,514$ fork length (mm), and $t\text{-zero} = -1.178$). The Manooch and Potts (1997) parameters were used in this study over those of Burch for describing the growth dynamics and for estimating age from length of the Atlantic greater amberjack stock for three reasons: 1) the results are more recent than the Burch study which was conducted in the mid 1970's and growth may have changed in the period between, 2) the results were based on otolith readings which have shown to be necessary for this hard to age species, and 3) although Manooch and Pott's study is considered limited in terms of the total number of fishes ages ($n=155$) fish were sampled from a wider geographical coverage, North Carolina through the Florida Keys, than in Burch's study and included samples from headboats as well as commercial handline vessels thus including fish of larger sizes, in their growth calculations than for example, did the previous greater amberjack growth study of Manooch and Potts (1997) which only sampled headboats in the Gulf of Mexico. This study contained fishes from 442 mm through 1365 mm fork length whereas the Burch study included fish ranging in size from 256 mm to 1,435 ($n=343$, length range represents average).

Current Fishery Statistics

Commercial Landings

Over the 37 calendar year period, 1962 through 1998, reported commercial landings of the Atlantic greater amberjack stock ranged from 6,344 (1962) to 2,332,479 pounds (1991) (Table 1a, Figure 1; Appendix Table 1FY, Appendix Figure 1FY). The 1998 landings data are preliminary. There is good anecdotal information to explain the

explosive increases in reported landings during the mid 1980's. Increased consumption of greater amberjack as an edible foodfish and usage of this species by restaurants as a substitute for redfish in the blackened fish restaurant market occurred (see Berry and Burch 1978). In addition, in the mid to late 1980's, hook and line fishermen shifted to targeting greater amberjack from other fisheries (snapper and grouper and king mackerel) on the Florida east Coast (Hartig 1991). Hartig (1991) further noted the sinking of two barges off Palm Beach, Florida Inlet in the fall of 1989, thought to be large attractors to jacks. Reported commercial landings declined from 1991 through 1993, remained stable at about 1.9 million pounds through 1995, and declined through 1998. Potts et al. (1998) also reported the stable trend in commercial landings from 1993 through 1995.

The reported commercial landings data show as in earlier reports that the Atlantic stock is landed commercially for the most part in Florida with significant quantities of this resource being caught in the Florida Keys and landed in Monroe, County (Florida) (Table 1b). Between 1986 and 1989 there were some catches landed in Florida and trucked to inland points for subsequent sale; these landings are labeled (Table 1a) as Florida inland landings and generally have not occurred in later years. The 1998 reported landings are 19.6% lower than the reported landings for 1997. The distribution of commercial landings by major gear category and by statistical grid of capture was reviewed. As in previous years reports, the major gear used in capture is hook and line and also that greater amberjack are caught mainly off the Florida east coast (Table 2 and 3 and Figures 2 and 3). The monthly distribution of landings from North Carolina through Monroe County, Florida is presented in Table 4 and Figure 4. Month was un-recorded on the commercial landings records before 1977. This table indicates as in previous examinations of the landings data that March through June are the main landings months contributing on average 56% of the total annual landings. This is not un-expected as these months are presumed to be during the peak of spawning for this species in the Atlantic (Burch 1979).

Total Recreational Harvest (A+ B1 Catch) By State and Fishery

Total estimated recreational harvest (A+B1) of the greater amberjack stock in the Atlantic Ocean ranged from 14,911 (1982) fish to 100,326 fish (1987) from 1981 through 1998. The recreational harvest, A+B1, includes catches by private anglers, shore fishermen, charter boats, and headboats (Table 5, Figure 5). Traditionally shore and headboat anglers have made up a small percentage of the anglers catching greater amberjack. As reported by Cummings and McClellan (1996) most of the recreational harvest, A+B1, comes from Florida anglers (Table 6, Figure 6a; Appendix Table 2FY, Appendix Figures 2Fy, 3aFY). Greater amberjack have been caught ore often by charterboat anglers since about 1991 than by private or headboat anglers (Figure 6b, Appendix Figure 3b). The breakdown of recreational harvest by state, fishery, and fishing year is given in Table 6 and Appendix Table 2. Interestingly, based on a survey of charterboats sampled off Dade County, Florida from May 1970 through April 1978, Berry and Burch estimated that 85% of all amberjack landed were caught by charterboats.

The overall trend of estimated Atlantic greater amberjack recreational harvest, A+B1, of the Atlantic greater amberjack stock is a declining one that began around 1987. This

pattern is complicated however; by apparently large increases in the charterboat sector catch estimates for 1987 and 1994, and in the private boat fishery in 1996 (Figure 6b). The large increases in recreational catch around 1994 and 1996 are not as prominent when the data are summarized by fishing year and fishery (Appendix Figures 3a,bFY). The pattern of A+B1 harvest across all sectors shows a decline occurring between fishing year 1987 and 1990, a non-varying trend in A+B1 harvest from 1990-1995 and a decline since 1995. Both the calendar year and fishing year summaries show an increase in catch occurring in 1987 and in 1989 on the East Coast of Florida, as was indicated with commercial landings. The charterboat fishing year summary indicates an increase occurred in the 1989 fishing year. The increase in the estimate of charterboat catch reported for the 1994 calendar year is apparent in the 1993 fishing year; the following (fishing) years however indicate a gentle decline in estimated A+B1 harvest. The private boat fishery fishing year summaries suggest that the estimate of A+B1 catch, increased through fishing year 1989 and declined in 1990. The pattern of private boat catch is not clear after 1990 however, as the estimates show several years of increases followed by declines in estimates of catch, A+B1, and then increases again in the estimates of A+B1 harvest (Appendix Figure 3a, 3b).

There is good reason to be cautious when discussing trends in the private and charterboat sectors, and in estimates of total recreational harvest, as the variance estimates of the MRFSS catch estimates are very large in some years (see Table 5). The large variability in estimated recreational catch was also apparent in the estimated trajectory of recreational landings by charter boats reported by Potts et al. (1998). Potts et al. (1998) show a similar trend in rising recreational landings (in weight) in the mid 1980's peaking in the early 1990's and declining since 1991. The increase recreational catch estimates occurred at about the same time, mid to late 1980's, as did increasing commercial landings.

Distribution of Recreational Harvest (A+B1 catch) by Two Month Wave and By Fishery

The proportional distribution of recreational A+B1 harvest of greater amberjack caught in the Atlantic Ocean is shown by two month time period (wave), by state (and for all states combined), and by calendar year (Figure 7). These plots again show as with the commercial landings that the majority of estimated A+B1 harvest comes from spring and summer months in all years. In Florida, these distributions show that a moderate level of recreational effort for this species occurs year round unlike for example in Georgia where the catches are small except during May- June and some fall activity in the later years. Winter recreational catches of greater amberjack off Georgia are very low in comparison to Florida. In the Carolinas, recreational catches occur mainly during the late summer and fall months. The pattern provides support for the hypotheses made regarding greater amberjack making fall migrations up the Atlantic east coast during fall months and southward from the Virginias into Florida during spring (McClellan and Cummings 1997). These distributions also provide researchers with information that shows historically when recreational effort may have occurred in a specific area (state) although it not known whether the effort was directed at this species.

The distribution of the recreational A+B1 harvest A+B1 across each two month wave (time period) is shown for each fishery and the distribution of harvest (A+B1) across fisheries within a two month wave (time period) is given in Figure 8a. These distributions give some idea as to when a particular sector has the greatest impact on recreational greater amberjack catches in the Atlantic Ocean. The charterboat sector dominates all time periods except late summer and early fall when the private boat fishery takes more catch on average across all years (Figure 8b). These plots also indicate that private boat and charterboat anglers have caught greater amberjack year round with late summer being the lowest period for charterboat anglers and late fall the lowest catch period for private boat anglers. Private boat fishermen are known to fish the fall migration of king mackerel as they move up the coast off the Carolinas. In addition, many fishermen have traditionally fished the fall spawning aggregations of reef fishes including mutton and yellowtail snapper, activity which might explain lower private boat catches of greater amberjack during the fall months. Figure 9 show the percentage breakdown of recreational harvest, A+B1, by calendar and distance off shore (Ocean zone). In nearly all years the majority of the estimated recreational greater amberjack in the Atlantic Ocean has been taken from federal waters.

Estimated Total Recreational Catch: A+B1 Harvest and B2 Releases by Fishery

Changes in recreational regulations that have been adopted since the Cummings and McClellan (1996, 1997) reports include the adoption of a one fish per person per trip bag limit in Monroe County, Florida for all amberjack species. This regulation in addition to the three fish per person per trip bag limit and to the 36" fork length minimum size limit implemented in 1991 for federal waters should be considered with any discussion of trends in recreational catch. The quantity of greater amberjack being released was of interest here because of the recent regulations regarding the 3 fish bag limits and also the 28 " fork length minimum size limit.

Estimates of the number of the Atlantic greater amberjack caught and released, referred to as B2 catch, existed from the MRFSS survey. Estimates of releases were not available for the headboat fishery. Between 1981 and 1985 catch estimates for the charterboat and headboat (party) were combined therefore releases of greater amberjack by charterboat fishermen are presented only since 1986. Over the period 1981 - 1998 charterboat anglers released on average 17 % of their total catch ranging from 6.5% to 30.1 % annually (Table 8, Figure 10; Appendix Table 3FY). The percentage of fish released from the charter boat fishery was fairly consistent across all years. Anglers fishing from private vessels released on average 49 % of their catch however, the annual percentage of the total catch that was released was more variable ranging from 31 % to 83 % and show the highest percentage of releases occurring in more recent years. The total number of fish caught, A+B1+B2 and the estimated number of releases, B2, is given by two-month wave (time period) in Figure 11. These results indicate a significant number of fish are released between May and August. Table 9 shows the distribution of releases within fishery across two-month wave period showing that during the spring and summers months the charterboat fishery releases the most fishes percentage wise. The pattern of releases is similar for the fishing year summaries. Figure 12 shows the distribution of total catch, A+B1 harvests + B2 releases, by calendar year.

The summary information pertaining to the pattern of the B2 catch, the estimated number of greater amberjack caught and released in the Atlantic Ocean, when combined across fisheries with the A+B1 harvest, also shows declines in A+B1+B2 total catch of greater amberjack (Table 9, Figure 11 and 12; Appendix Figure 4FY). Apparent also is an increasing trend in the number of releases, B2, between 1985 and 1993. The pattern of total estimated catch, A+B1+B2, shows a large catch decline in calendar year 1995 which seems anomalous because the 1996 estimate is about the same level as the 1991, 1992, and 1993 calendar year levels. The annual pattern of estimated total catch (A+B1+B2) indicates large declines for calendar years 1997 and 1998. The complimentary fishing year summary (Appendix Figure 5FY) however, indicates a gentle decline in total estimated catch, A+B1+B2, starting in 1993 that continues through the 1997 fishing year with the estimates of the largest declines for the private boat fishery and occurring since 1996.

Estimates of total recreational fishing effort from the MRFSS survey (Appendix Figure 6FY), which includes fishing activity of all anglers were available. These estimates were considered in trying to understand the pattern of recreational catches. The summary trip estimates indicate total estimated private angler effort increased by about 2.5 times between fishing year 1986 through fishing year 1988 declined through fishing year 1990 by about 1/3, varied without trend through the 1995 fishing year and declined again in 1996 (Figure 6a). Estimated effort by charterboat fishermen also increased between 1987 and 1988 fishing year and then declined by about half, through 1990 and the estimate of total charterboat effort has varied without trend since.

Greater amberjack Catch Sample Size Frequency Data

The individual length frequency samples available for the Atlantic greater amberjack stock were replaced in total from the same data sources as used in the earlier assessments. The majority of samples were from the NMFS Trip Interview Program, the NMFS Beaufort Laboratory Headboat Survey, the MRFSS database, and the NMFS, Panama City Laboratory. Some additional samples also existed from the Biscayne National Park sampling program, which intercepts private boat fishermen off Miami, Florida. The number of individual length measurements by year, state of collection, and fishery is given in Table 10. In general the Atlantic greater amberjack fisheries were not sampled to any large degree (Table 10) until the mid 1980's although this stock has been heavily exploited since the early 1950's (Berry and Burch 1978). The availability of catch samples for the dominant gear types used in exploiting the Atlantic greater amberjack stock are described below.

Commercial Handline

The commercial Handline fishery was sparsely sampled until 1991; in all years before 1991 from 1 fish to 201 fishes were measured for length. From 1991 through 1998 from 413 fish to 1,409 fish were measured annually across all states where Atlantic greater amberjack were landed. Most samples were taken from vessels landing greater amberjack catches off the Florida East Coast and in the Florida Keys (Table 10). In 1995 sampling declined to a very low level in Monroe county, Florida and did not return to the

previous year's level until 1997. The states of South Carolina followed by North Carolina dominate the landings of commercial vessels landing Atlantic greater amberjack after Florida (see Table 2). Until 1996 however, less than 100 fish were measured for length in South Carolina and in North Carolina on average about 50 greater amberjack were measured annually. Because the total number of samples were so few, and the total number of individual measurements, and these samples were restricted temporally across months of the year (Table 10), it was not possible to assign samples at the monthly level. However, where the total number of measurements was near 100 fish for a state and the annual density did not appear truncated, samples were assigned at the state level to commercial Handline catches. Table 10 also shows that sampling of the commercial Handline catches increased between 1996 and 1998 indicating some improvement in data acquisition for this fishery since the 1996 Cummings and McClellan study. A detailed listing of the protocol followed for assigning samples to each fishery, area (state), year commercial Handline landing is given in Appendix 7.

Commercial Bottom Longline Samples

Greater amberjack have been reported landed by commercial vessels using bottom longlines since about 1982 annually in small quantities less than 1000 pounds; and annually since 1986 about 20,000 to 30,000 pounds were landed annually (see Tables 2 and 3c). The observed length distribution of greater amberjack landed by bottom longline was visually different from Handline caught fish, suggesting that fish caught by this gear were slightly larger than fish caught on handlines, therefore maintaining gear in the sample assignments seemed important. Since 1988, 402 fish were measured from bottom longline catches. The 1992 and 1993 bottom longline samples were assigned to bottom longline catches; in all other years it was necessary to pool samples from bottom longline with commercial Handline samples. About half of the bottom longline samples were from Florida and the remaining half distributed over the Carolinas and Georgia however, the coverage was too sparse to allow assigning at the state or a finer gear level. Appendix 1 gives details on the protocol used in assigning commercial samples to bottom longline catches.

Commercial Dive Samples

Since about 1986, substantial quantities of the Atlantic greater amberjack stock have been landed by commercial vessels using spearguns or powerheads (see Tables 2, 3d). These catches were sampled infrequently and only since 1991 although this gear is the second in importance in exploiting this stock since about 1987 with most dive catches being taken off Florida (see Table 3d). The 1993 and 1996 commercial dive samples were assigned to dive catches however as with bottom longline catches, it was necessary to use samples commercial handline catch samples in addition to dive catch samples in all other year for estimating the catch at size. Most of the dive samples were from Florida and Georgia. Appendix Figure 7 gives details on the protocol used in assigning commercial samples to dive catches.

Recreational Charter, Private, and Shore Catch Samples

The distribution of the Atlantic greater amberjack catch length frequency samples for the recreational fishery (Table 10) were examined with respect to fishery (charter, private, shore), year of sample, and the state of intercept (i.e., Florida East coast, Monroe

county, Florida; Georgia, South Carolina, and North Carolina). Since 1981, nearly 1,700 fish were measured for length with most samples coming from the charterboat fishery (n=1,279 lengths) followed by the private boat fishery (n=387 lengths), and then the incidental shore catches (n=25 lengths).

The summary statistics from Table 10 show that since 1996 MRFSS length frequency sampling did not increase for the Atlantic greater amberjack in the private boat fishery and shows only a small increase in 1998 in the charterboat sector. The distribution of MRFSS samples collected by state (Table 10) is consistent with the information presented by Cummings and McClellan (1996). In many year-state cells only one fish was sampled in the private boat fishery. The two highest years of sampling was 1981 (n=55 lengths) and 1996 (n=37 lengths). In some states the private boat fishery was rarely sampled, in other years not at all. Catches of greater amberjack by this sector however have been substantial over the period, 1981-1998 and, in fact many private boat fishermen have registered concern with fisheries regarding the status of the stock (Amend. #9, SG-FMP).

In most years the number of lengths sampled from charterboat catches was fewer than 100 in any state (Table 10). In 1987, 1989, 1991-1994 and in 1998 charterboat samples were assigned separately to charterboat catches. In other years private boat catch samples were used as well. Too few samples were collected for the private boat fishery in any year to consider assigning samples at the fishery level therefore, charterboat samples and private boat samples were pooled for the purposes of catch at size estimation. Samples were always combined across states since the number of lengths was less than 50 lengths at the state level. The number of recreational lengths for South Carolina was low in general; however, the absence after 1994 seems suspect. Appendix Figure 8 gives a detail accounting of the protocol used in assigning recreational samples to recreational catches for all fisheries.

Recreational Headboat Catch Samples

Recreational catch length frequency samples from the headboat fishery were considered separately because of operational differences between headboats and other recreational modes (i.e., charter, private). In addition, previous studies (Cummings and McClellan 1996, Potts et al. 1997, 1998) have shown differences between the sizes of greater amberjack caught by headboat anglers and those caught by charterboat or private boat recreational fishermen. Visual inspection of the length densities (Figure 13) indicated that traditionally headboat anglers have landed smaller fish than those caught and landed by anglers fishing from charterboats and/or private boats.

Samples from headboat catches were sufficient from the Florida East Coast in 1981, 1983-1987, and in 1989 to assign samples at the state-year resolution level. Headboat catch samples were pooled across state in all other years for use in catch at size estimations. The sample length frequency statistics (Table 10) show that headboat sampling declined since the earlier 1996 assessment and in fact the number of samples in 1997 was about 70% lower than the level of 1987. Greater amberjack headboat catches in Georgia have traditionally been very low (see Table 6). Greater amberjack headboat

sampling in the Carolinas has varied without trend, while the number of lengths sampled in Florida has consistently declined over all since the late 1980's. Headboat catches of greater amberjack are highest in Florida.

Estimated Total Catch at Size and Total Landed Catch At Age

The results of the catch at size estimations were reviewed with respect to the sufficiency of samples available to characterize the catch dynamics with respect to time period (year) and geographical location (state) for each fishery. The sampling was considered sufficient only since 1987 for purposes of estimation of total catch. Prior to that year the commercial fishery was not sufficiently sampled. Therefore the history of estimated catch at size and estimated catch at age for subsequent analyses related to stock assessment only considered the calendar years 1987 and forward.

Estimated total commercial catch at size for the Atlantic greater amberjack stock is presented in Figure 14 and Table 11 for the three main commercial gears. Gears that made incidental catches of greater amberjack (i.e., trap, fish trawl, seine, etc.) are shown in these distributions as "commercial other gears". The length distributions of the estimated commercial handline catch between 1987 and 1991 indicate a substantial amount of small fish were landed prior to the minimum size regulation was adopted in 1992. These plots do not show reveal distinct size modes in many years. The size distributions for the 1993 and 1996 dive catches (Figure 14b), the only two years considered sufficient in terms of sample size to use at the gear specific level, provides some information to suggest that this fishery exploited a more restricted size range of greater amberjack than did the handline fishery.

Estimates of the total landed catch at size, A+B1, for recreational catches of greater amberjack in the Atlantic Ocean are presented in Figures 15 and 16 and Tables 12 and 13. The plots for the charterboat catch (15a) and the private boat catch (15b) are not very dissimilar in some years, revealing the pooling effect of having to assign charterboat samples as well as samples from the private boat fishery to apportion the catch over length.

The total estimated landed catch for the Atlantic greater amberjack stock for the three main fishery types, commercial, recreational, and headboat is presented in Table 14 and Figure 17. Estimated total yield landed (reported commercial and estimated recreational) is given in Table 15 and Figure 18.

Total Landed and Discarded Catch

Further evaluation of the status of the Atlantic greater amberjack made use of the catch at age estimated in this study and Virtual Population Analyses. VPA analyses require that the total removals be known in order to estimate stock sizes and fishing mortality rates. To accurately reflect the total removals of the recreational catch of the Atlantic greater amberjack the estimated catch of releases, B2, catch (see Table 8) were used. Limited information exists to document the quantity of fish that die after release. Preliminary information from a small study (n=23 fish released) conducted under optimal conditions indicated that survival for fish released from headboats was fairly high, 91%, (Manooch pers. comm.) however, this rate seemed high. A 20% mortality figure was

assumed and applied to the estimated B2 catch (see Table 8) and the resulting discarded catch distributed equally across all ages in the recreational MRFSS catch. A review of the individual observations of catch per angler in the MRFSS intercepts indicate that catches larger than the 3 fish per person bag limit (enacted in 1992) have continued to occur after the regulation (Figure 19). This provided some support that the size distribution (and age) of the B2 catch may not be entirely limited to fish below the minimum size therefore the fractional portion of the B2 catch assumed to die (20%) was distributed across all ages.

It was noted that after 1992, the estimated commercial and headboat catch at length distributions (see Tables 11-13 and Figures 14-16) suggested that the distribution of small (young) fish in the catch was not the same as before the size regulation went into effect. Information regarding the size of fish that may be released by either of these fisheries, either because of minimum size regulations for the commercial fishery or because of size limit restrictions and/or bag limit restrictions in the case of the headboat fishery was unavailable. Port agents were contacted and the operating practices of the commercial handline fisheries discussed as pertains to releasing fish. It was generally thought that releases if made in the commercial fishery, would most likely be fish less than the minimum size. Therefore, it was assumed that the average fractional proportion of the catch at age prior to the regulation, 1987-1991, was the same as the average fractional proportion of the catch at age after the regulation. The catch at age for each year was then adjusted upwards by the difference in the proportions at age between the two periods (Table 16). This catch, referred to as the discarded catch, was estimated for ages 5 and lower for the commercial fishery and for age 4 and below for the headboat fishery. The estimated total directed catch at age for the Atlantic greater amberjack stock, including discards, is presented by fishery (commercial, recreational, and headboat) and for all fisheries combined in Figures 20 and in Table 17).

Stock Evaluation Concerns

The Atlantic greater amberjack estimates of total catch at age, landed plus discarded, (Table 17, Figure 20) were used in conjunction with standardized indices of abundance developed for this stock (see Cummings et al. 1999) in subsequent analyses that evaluated the status of the stock. Those analyses used VPA techniques and incorporated uncertainty regarding greater amberjack biological parameters into calculations of stock sizes and future allowable biological catches. In addition to requiring information on removals, measures of abundance for purposes of tuning, these procedures also require information on maturation size, fecundity at size or age, and natal mortality (M). The biological literature for the greater amberjack was reviewed with respect to these biological parameters.

Potts et al. (1998) gave a range of values for M, calculated using eight different methods, several that made use of growth parameter estimates and several incorporated information regarding environmental parameters including Pauly's (1980) approach using temperature. These methods are dependent on the growth information for computing the growth rate parameter, k and that the study is reflective of all ages in the population. Estimates of M from the independent methods ranged from 0.14 to 0.55 (Table 18). Two

estimates were below 0.2 and five of the eight were below 0.3. The mean calculated M value for the three studies that incorporated growth information and also environmental data was 0.20. Cummings and McClellan (1996) used a value of $M=0.3$ in their preliminary VPA analyses. Potts et al. (1998) calculated the spawning potential ratios (SPR's) using two values of M, 0.2 and 0.25. Further analyses of the Atlantic greater amberjack examined the stock status used 0.25.

SPR is defined as the ratio of the number of eggs that could be produced by an average recruit over its lifetime when the stock is fished divided by the the number of eggs that could be produced by an average recruit over its lifetime when the stock is unfished. SPR is often referred to as comparing the spawning ability of a stock in the fished condition to the stock's spawning ability in the unfished state. The Atlantic greater amberjack stock is presently managed by using a 40 % static SPR ratio.

Fecundity at size data do not exist for the Atlantic greater amberjack from any study. Burch (1979) evaluated gonad condition in fish collected from south Florida and found that maximum gonad development occurred in the spring months however, that study did not carry out microscopic evaluations of the gonads.

Reliable information on maturation is critical as the choice of age at maturity can have an impact on the resulting SPR value. Studies providing theoretical SPR's for the Atlantic greater amberjack have used weight at age information in the absence of fecundity at size (age) data assuming that 50% sexual maturity in Atlantic greater amberjack occurs at age 3 (see Huntsman et al. 1992, 1993a, 1993b and Potts et al. 1998). The use of age 3 as the current maturation age for this stock has some support based on observations of the sizes of ripe fish and the estimated size at age from growth studies.

Burch's (1979) south Florida study and Thompson et al.'s (1991) study for fish collected off Louisiana provide the only information on uration of the greater amberjack of the southeastern U.S. Burch's study reported that all fish were mature by their fourth year which corresponded to an estimated Von Bertalanffy size range of 77 cm – 91 cm fork length or to a size range off his scale readings of 80 cm – 91 cm fork length (Figure 21). Burch reported below about 50 cm fork length sex determination in greater amberjack was not possible and further that some fishes were mature by the third year of life, corresponding to a Von Bertalanffy estimated size range of 61 cm – 77 cm fork length according to Burch's growth parameters (see Figure 21). Manooch has also reported that Atlantic greater amberjack mature by their third year of life (Manooch pers. comm.). This information, based on fish sampled nearly 23 years ago, suggests that Atlantic greater amberjack mature from age 3 to 4 and all fish are mature by age 5.

The Thompson et al. (1991) study, some 20 years later, provides comparative data on maturation in this species from another region. Although Thompson's two-year study was hampered by a large number observations of ovaries that appeared to be infected with an unknown pathogen some information on maturation was still obtained. Thompson reported as did Burch (1979) that gonad development was maximum during spring, mainly between May and June. These investigators also reported that greater

amberjack sampled in their study matured between 93 cm and 96 cm fork length and their maturity determinations were all based on histological examinations. Based on their growth determinations made using sectioned otoliths they postulated that the age of maturity was age 2 to 3. Beasley et al. (1996) provide good support regarding the size at age information from the Thompson et al. as ages 2 and 3 (see Figure 21) were verified through oxy-tetracycline marking experiments. Cummings and McClellan thus used age 3 as the age of knife-edge maturity in their analyses of the Gulf of Mexico greater amberjack stock involving SPR calculations.

Neither the Burch (1979) study nor the Thompson et al. (1991) study provides definitive information on the maturation age of the greater amberjack. The Gulf of Mexico study may not be applicable to fish from south Florida and fecundity at size (age) was not determined. In addition, maturation may have changed in the Atlantic since Burch's study however, neither of the studies provide any scientific support to suggest that the age of 50% maturation in the Atlantic greater amberjack is currently beyond age 5.

Acknowledgments

Josh Bennet and J. Poffenberger provided commercial fishery statistics. Patty Phares provided all data pertaining to the recreational and headboat fishery. Charlie Schaeffer and Rick Beaver provided comments regarding changes in the operation of the recent commercial fisheries. Chuck Manooch answered many questions related to growth and maturation in this species. Steve Turner provided helpful comments on the manuscript. Thanks are extended to these individuals for their timeliness.

Literature Cited

Anonymous, 1991. South Atlantic snapper grouper assessment 1991, Unpublished manuscript presented to the South Atlantic Fishery Management Council, June 1991. U.S. Dept. of Comm., NOAA, NMFS, SEFSC, Beaufort Laboratory, 21 p.

Beasley, M. L. 1987. Age and growth of greater amberjack, *Seriola dumerili*, from the northern Gulf of Mexico. M.S Thesis. Department of Oceanography and Coastal Sciences, Louisiana State University, 1993. 85 p.

Berry, F. and R. Burch. 1978. Aspects of the Amberjack Fisheries. Proc. Gulf and Carib. Fish. Inst. 31:179-194.

Burch, R.K. 1979. The greater Amberjack, *Seriola dumerili*, its Biology and Fishery off Southeastern Florida. M.S. Thesis. University of Miami, Coral Gables, Florida. 194 p.

Cummings, N. J. 1998. Fishery statistics for the Atlantic greater amberjack, *Seriola dumerili*, since 1995. U.S. Dept. of Comm., NOAA, NMFS, SEFSC, Sustainable Fisheries Division SFD/98/99-41 27p

Cummings, N. J. and D.B. McClellan. 1997. Status of the Greater Amberjack, *Seriola dumerili*, in the southeastern United States through 1995. Proc. Gulf and Carib. Fish. Inst. 49: 246-272.

Cummings, N. J. and D.B. McClellan. 1996. Movement patterns and stock interchange of greater amberjack, *Seriola dumerili* in the Southeastern U.S. U.S. Dept. of Comm., NOAA, NMFS, SEFSC, Miami Laboratory Cont. No. MIA-95/96-14. 60 p.

Cummings, N.J. , S. C. Turner, D. B. McClellan, and C. M. Legault. 1999. Atlantic Greater Amberjack Abundance Indices From Commercial Handline and Recreational Charter, Private, and Headboat Fisheries through fishing year 1997. U.S. Dept. of Comm., NOAA, NMFS, SEFSC, Sustainable Fisheries Division SFD/98/99- 62 77p.

Gentle, E.C. 1977. The charterboat sport fishery of Dade County, Florida. March 1976 to February 1977. M.S Univ. of Miami. 162 p.

Huntsman, G. R. J. Potts, R. Mays, R. Dixon, P. Willis, M. Burton, and B. Harvey. 1992. A stock assessment of the snapper-grouper complex in the U.S. South Atlantic based on fish caught in 1990. U.S. Dept. of Comm., NOAA, NMFS, SEFSC, Beaufort Laboratory, Unpublished Manuscript, 105 p.

Manooch, C. S. , III and J. C. Potts. 1997. Age, growth and mortality of greater amberjack, *Seriola dumerili*, from the southeastern United States. Fisheries Research 30:229-240.

Parrack, N. C. [1993] The exploitation status of the Atlantic amberjack fisheries through 1991. DOC\NOAA\NMFS\SEFSC\Miami lab. Contr. MIA-92/93-77. 32 p. Unpubl. MS.

Parrack, N.C. 1993 b. Updated fisheries information for greater amberjack through 1992. U.S. Dept. of Comm., NOAA, NMFS, SEFSC, Miami Laboratory Cont. No. MIA-92/93-77. 32 p.

Pauly, D. 1980. On the interrelationships between natural mortality, growth parameters and mean environmental temperature I 175 fish stocks. J. Cons., cons. Int. Explor. Mer 39(3):175-192.

Potts, J. M. and M. L. Burton. 1999. Trends in catch data for fifteen species of reef fish landed along the southeastern United States. U.S. Dept. of Comm., NOAA, NMFS, SEFSC, Beaufort Lab., Unpub. Manuscript 33p.

Potts, J., M. L. Burton, and C. Manooch. 1998. Trends in catch and estimated static SPR values for fifteen species of reef fish landed along the southeastern United States. U.S. Dept. of Comm., NOAA, NMFS, SEFSC, Beaufort Laboratory, Unpublished Manuscript, 45 p.

Table 1a. Reported commercial landings by state and calendar year for Atlantic Ocean greater amberjack in the southeastern United States, 1962-1998. Landings from the Florida Keys are included in the Atlantic stock. The 1998 values are preliminary. Units are whole weight (pounds).

Calendar Year	North Carolina	South Carolina	Georgia	Florida (east)	Florida(inland)	Florida(west)	Total Atlantic	Total Gulf	All
1962				6,344			6,344		6,344
1963				6,032		3,744	6,032	3,744	9,776
1964				7,696		832	7,696	832	8,528
1965				8,736		832	8,736	832	9,568
1966				21,736		1,976	21,736	1,976	23,712
1967				23,192		728	23,192	728	23,920
1968			300	26,624		1,352	26,924	1,352	28,276
1969				15,808		2,496	15,808	2,496	18,304
1970				40,248		5,408	40,248	5,408	45,656
1971				22,776		3,848	22,776	3,848	26,624
1972				11,128			11,128		11,128
1973				35,880		8,632	35,880	8,632	44,512
1974				34,216		13,416	34,216	13,416	47,632
1975		100		53,040		7,696	53,140	7,696	60,836
1976		531		68,016		3,328	68,547	3,328	71,875
1977		162	2,787	64,584		2,704	67,533	2,704	70,237
1978		128		39,104		5,408	39,232	5,408	44,640
1979	3,982	1,968		33,072		24,960	39,022	24,960	63,982
1980	6,764	20,833	2,161	33,178		13,696	62,936	13,696	76,632
1981	14,737	33,617	6,277	36,717		15,101	91,348	15,101	106,449
1982	5,018	48,971	1,258	44,859		95,574	100,106	95,574	195,680
1983	6,364	18,674	828	38,869		68,217	64,735	68,217	132,952
1984	3,477	9,312	895	93,680		105,277	107,364	105,277	212,641
1985	11,403	4,330	4,584	99,301		60,431	119,618	60,431	180,050
1986	40,676	52,852	6,914	239,367	2,701	172,522	339,809	172,522	515,032
1987	33,683	57,867	9,365	855,569	6,201	427,477	956,484	427,477	1,390,162
1988	56,983	48,322	14,802	625,508		520,356	745,615	520,356	1,265,971
1989	63,498	112,642	13,175	705,403	7,252	390,586	894,718	390,586	1,292,556
1990	85,264	121,756	29,525	690,235	1,179	986,497	926,780	986,497	1,914,456
1991	124,820	151,155	69,096	811,013	144	1,176,251	1,156,084	1,176,251	2,332,479
1992	107,328	111,125	60,176	939,182	520	998,894	1,217,811	998,894	2,217,225
1993	129,011	186,322	83,800	746,443	435	755,066	1,145,576	755,066	1,901,077
1994	151,227	132,669	87,316	967,036	0	616,146	1,338,248	616,146	1,954,394
1995	169,974	142,921	56,698	762,368	433	774,919	1,131,961	774,919	1,907,313
1996	139,656	150,831	44,469	664,344	915	543,481	999,300	543,481	1,543,696
1997	176,988	201,762	26,437	563,634		433,381	968,821	433,381	1,402,202
1998	100,228	137,416	31,471	478,015		380,978	747,130	380,978	1,128,108

Table 1b. Reported commercial landings (percent) by state and calendar year for Atlantic Ocean greater amberjack in the southeastern United States, 1962-1998. Percent landings from the Florida Keys are included in the Atlantic stock. The 1998 values are preliminary.

Calendar Year	North Carolina	South Carolina	Georgia	Florida (east)	Florida(inland)	Florida(west)
1962				100.00%		
1963				61.70%		38.30%
1964				90.24%		9.76%
1965				91.30%		8.70%
1966				91.67%		8.33%
1967				96.96%		3.04%
1968			1.06%	94.16%		4.78%
1969				86.36%		13.64%
1970				88.15%		11.85%
1971				85.55%		14.45%
1972				100.00%		
1973				80.61%		19.39%
1974				71.83%		28.17%
1975		0.16%		87.19%		12.65%
1976		0.74%		94.63%		4.63%
1977		0.23%	3.97%	91.95%		3.85%
1978		0.29%		87.60%		12.11%
1979	6.22%	3.08%		51.69%		39.01%
1980	8.83%	27.19%	2.82%	43.30%		17.87%
1981	13.84%	31.58%	5.90%	34.49%		14.19%
1982	2.56%	25.03%	0.64%	22.92%		48.84%
1983	4.79%	14.05%	0.62%	29.24%		51.31%
1984	1.64%	4.38%	0.42%	44.06%		49.51%
1985	6.33%	2.40%	2.55%	55.15%		33.56%
1986	7.90%	10.26%	1.34%	46.48%	0.52%	33.50%
1987	2.42%	4.16%	0.67%	61.54%	0.45%	30.75%
1988	4.50%	3.82%	1.17%	49.41%		41.10%
1989	4.91%	8.71%	1.02%	54.57%	0.56%	30.22%
1990	4.45%	6.36%	1.54%	36.05%	0.06%	51.53%
1991	5.35%	6.48%	2.96%	34.77%	0.01%	50.43%
1992	4.84%	5.01%	2.71%	42.36%	0.02%	45.05%
1993	6.79%	9.80%	4.41%	39.26%	0.02%	39.72%
1994	7.74%	6.79%	4.47%	49.48%		31.53%
1995	8.91%	7.49%	2.97%	39.97%	0.02%	40.63%
1996	9.05%	9.77%	2.88%	43.04%	0.06%	35.21%
1997	12.62%	14.39%	1.89%	40.20%		30.91%
1998	8.88%	12.18%	2.79%	42.37%		33.77%

Table 2. Reported commercial landings by gear type and calendar year for Atlantic Ocean greater amberjack in the southeastern United States, 1962-1995 preliminary. Units are in pounds (whole weight).

Gear	1977	1978	1979	1980	1981	1982	1983	1984	1985
Hook & Lines	70,075	44,640	62,391	48,825	61,818	158,870	116,743	205,081	172,314
Surface Longlines									
Bottom Longlines						464	765	1,173	2,016
Dive Gear									
Gillnets						495	20		53
Traps									
Trawls	162	0	1,591	27,807	44,631	35,851	14,794	4,587	5,666
Saines								1,800	
Unclassified							629		
All Gears	70,237	44,640	63,982	76,632	106,449	195,680	132,952	212,641	180,050

Gear	1988	1989	1990	1991	1992	1993	1994	1995	1996
Hook & Lines	1,235,388	1,203,391	1,867,047	2,213,449	2,067,069	1,767,215	1,766,045	1,797,278	1,471,642
Surface Longlines		137		71	606	42	17	667	1,661
Bottom Longlines	4,858	6,618	21,155	20,575	26,371	22,692	9,842	25,689	24,155
Dive Gear	18,373	70,807	18,066	81,153	120,181	108,814	175,418	80,504	44,657
Gillnets	1,557	1,399	412	1,275	1,644	971	1,977	1,531	581
Traps	953	0	5,872	7,453	33		216	1,108	65
Trawls	4,461	2,952	117	155	114	654		20	20
Saines	97			8			56	83	
Unclassified	284	7,252	1,787	8,340	1,207	689	823	433	915
All Gears	1,265,971	1,292,556	1,914,456	2,332,479	2,217,225	1,901,077	1,954,394	1,907,313	1,543,696

Table 3a. Reported commercial landings by capture grid and calendar year for Atlantic Ocean greater amberjack in the southeastern United States, 1977-1998, for *Hook and Line* captures only (note 2). Values from 1998 are preliminary. Units are in pounds (whole weight).

Gnd	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
1	0	0	0	0	1,232	1,945	4,751	4,297	9,669	65,557	119,691
722	0	1,664	0	1,256	11,073	3,646	3,352	11,128	8,832	17,034	34,837
723	0	0	0	0	0	0	0	310	1,288	1,893	3,848
727	0	0	0	166	26	43	136	364	98	84	3,538
728	0	312	1,872	2,484	1,988	8,944	1,044	1,197	13,828	51,615	194,203
729											
732	0	7,488	7,696	6,055	8,462	15,118	15,599	17,098	13,225	16,789	38,590
733	0	0	0	0	0	0	0	0	0	0	0
736	9,464	17,264	21,320	5,604	9,444	9,943	9,478	10,240	18,419	22,661	17,837
737	0	0	0	0	0	0	0	0	0	0	0
740	0	12,376	1,872	16,034	5,357	6,235	8,240	51,833	43,526	23	0
741	0	0	0	0	0	0	0	0	0	111,565	389,085
744	0	0	312	1,580	366	930	391	1,477	6,043	17,383	187,293
748	0	0	0	0	13,868	93,629	63,466	100,980	44,719	94,889	269,313
Unclassified	57,907	128	4,359	1,951	10,000	18,437	10,287	6,158	12,668	61,634	86,102
Foreign	0	0	0	0	0	0	0	0	0	0	0
All grids	70,075	44,640	62,391	48,825	61,818	158,870	116,743	205,081	172,314	461,127	1,344,337

Gnd	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	92,176	32,906	56,994	189,916	120,086	69,883	85,667	132,136	64,056	80,662	99,068
722	284	0	280	0	0	0	0	110,912	89,945	34,779	45,055
723	55,284	53,846	75,967	98,597	109,130	160,218	188,609	446	0	0	0
727	0	0	0	0	0	0	0	0	0	0	0
728	239,680	169,597	177,311	164,483	146,263	166,327	283,505	338,728	301,958	197,409	238,164
729											
732	17,473	79,280	95,045	86,884	171,901	158,032	115,255	49,359	49,585	79,148	15,956
733	0	0	0	0	0	0	35,591	0	0	0	0
736	11,350	17,176	27,045	49,669	48,657	65,632	2,511	69,691	60,417	64,169	62,357
737	0	0	0	0	0	0	61,761	165	0	0	0
740	54,133	0	0	75,689	229,692	58,107	50,515	345	0	0	0
741	217,795	391,612	279,682	6,981	8,456	1,864	3,583	93,518	75,442	54,886	28,904
744	70,562	127,290	167,424	142,615	97,843	107,873	250,923	385,120	497,244	349,608	212,631
748	368,705	161,329	778,918	1,040,974	879,004	633,775	329,490	284,298	21,532	50,788	54,997
Unclassified	107,946	170,355	208,381	357,641	256,037	345,504	358,635	332,560	311,663	343,038	240,877
Foreign	0	0	0	0	0	0	0	0	0	0	0
All grids	1,235,388	1,203,391	1,867,047	2,213,449	2,067,069	1,767,215	1,766,045	1,797,278	1,471,642	1,254,487	998,009

Note 2). North Carolina, South Carolina, and Georgia landings not classified to gear, 1977-1998.

Table 3b. Reported commercial landings by capture grid and calendar year for Atlantic Ocean greater amberjack in the southeastern United States, 1977-1998, for *Dive Gear* captures only (note 2). Values from 1998 are preliminary. Units are pounds (whole weight).

Gnd.	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
1											
722											
723											
727											
728											
729											
732											
733											
736											
737											
740											
741											
744										12,396	24,811
748											
Unclassified											
Foreign										671	5,296
All grids										13,067	30,107

Gnd.	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1				6,126	5,458	13,655	3,295	2,837	545	7,155	107
722				0	0	0	0	39,576	26,222	38,276	13,392
723				58,391	59,922	39,042	84,209	357	0	0	0
727											
728		13,934	16,050	4,608	5,304	8,295	24,204	4,351	3,522	24,314	3,050
729											
732				4,144	13,437	11,631	12,599	13,100	4,174	4,772	2,373
733											
736				407	952	925	12,628	7,780	7,637	5,039	4,176
737											
740				1,008	1,386	156	112	0	0	0	0
741	17,659	49,019	2,016	0	0	0	0	184	790	2,995	2,129
744				0	0	0	0	0	126	0	0
748				0	0	0	0	0	0	15	0
Unclassified	714	7,854		6,469	33,722	35,110	38,371	12,319	1,641	1,195	60
Foreign				0	0	0	0	0	0	0	0
All grids	18,373	70,807	18,066	81,153	120,181	108,814	175,418	80,504	44,657	83,761	25,287

Table 3c. Reported commercial landings by capture grid and calendar year for Atlantic Ocean greater amberjack in the southeastern United States, 1977-1998, for *Bottom Longline* captures only (note 2). Values from 1998 are preliminary. Units are pounds (whol

Grid	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
722											
723											
727											
728											
729											
732											
733											
736											
737											
740											
741											
744											
748											
Unclassified						464	765	1,173	2,016	29,110	6,364
Foreign						0	0	0	0	0	0
All grids						464	765	1,173	2,016	29,110	6,364

Grid	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
722								129	787	347	2,837
723						14					36
727											
728				119	1,010	411		897	400	160	1,036
729					423	149					
732							1,475	845	341		464
733				1,218	5,955	2,784	669				
736								482	355	354	1,874
737				3,519	6,399	2,200					
740											
741					473	253					
744										746	582
748											158
Unclassified	4,858	6,618	21,155	15,719	12,111	16,881	7,698	23,336	22,272	58,765	28,826
Foreign	0	0	0	0	0	0	0	0	0	0	0
All grids	4,858	6,618	21,155	20,575	26,371	22,692	9,842	25,689	24,155	60,372	35,813

2). North Carolina, South Carolina, and Georgia landings not classified to gear, 1977-1998.

Table 3d. Reported commercial landings by capture grid and calendar year for Atlantic Ocean greater amberjack in the southeastern United States, 1977-1998, for *Traps and Pots* captures only (note 2). Values from 1998 are preliminary. Units are pounds (whole weight).

Grid	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
722											
723											
727											
728											
729											
732											
733											
736											
737											
740											
741											
744											
748											
Unclassified											
Foreign										22	156
All grids										22	156

Grid	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
722								422		37	
723											
727											
728											
729											
732											
733											
736											
737											
740											
741								165			
744	763										
748											
Unclassified	190		5,872	7,453	33	0	216	521	65	336	355
Foreign					0	0	0	0	0	0	0
All grids	933		5,872	7,453	33	0	216	1,108	65	373	355

2). North Carolina, South Carolina, and Georgia landings not classified to gear, 1977-1998

Table 3e. Reported commercial landings by capture grid and calendar year for Atlantic Ocean greater amberjack in the southeastern United States, 1977-1998, for Gillnets captures only (note 2). Values from 1998 are preliminary. Units are pounds (whole weight).

Grid	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
1											
722											
723											
727											
728											
729											
732											
733											
736											
737											
740											
741											
744											
748											
Unclassified						495	20	0	53	386	655
Foreign						0	0	0	0	0	0
All grids						495	20	0	53	386	655

Grid	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1											
722				503			780	202		4	109
723											
727											
728							268	582			
729											
732				2	232	6	34	28	117	11	42
733											
736				367	354		100		47	322	
737											
740							63				
741											
744											
748											
Unclassified	1,557	1,399	412	333	1,058	965	732	664	417	1,084	234
Foreign	0	0	0	0	0	0	0	0	0	0	0
All grids	1,557	1,399	412	1,275	1,644	971	1,977	1,531	581	1,421	385

2). North Carolina, South Carolina, and Georgia landings not classified to gear, 1977-1998

Table 3f. Reported commercial landings by capture grid and calendar year for Atlantic Ocean greater amberjack in the southeastern United States, 1977-1998, for *Trawls* captures only (note 2). Values from 1998 are preliminary. Units are pounds (whole weight).

Grid	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
722											
723											
727								34	86		
728											
729											
732											
733											
736											
737											
740											
741											
744											
748											
Unclassified	162	0	1,591	27,807	44,631	35,851	14,794	4,553	5,580	8,619	2,342
Foreign	0	0	0	0	0	0	0	0	0	0	0
All grids	162	0	1,591	27,807	44,631	35,851	14,794	4,557	5,666	8,619	2,342

Grid	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
722				48		14				647	
723											
727											
728						9		20		29	
729											
732											
733											
736											
737											
740											
741											
744											
748											
Unclassified	4,461	2,952	117	107	114	631	0	0	20	0	287
Foreign	0	0	0	0	0	0	0	0	0	0	0
All grids	4,461	2,952	117	107	114	631	0	20	20	676	287

2). North Carolina, South Carolina, and Georgia landings not classified to gear, 1977-1998

Table 3g. Reported commercial landings by capture grid and calendar year for Atlantic Ocean greater amberjack in the southeastern United States, 1977-1998, for *Selnes* captures only (note 2). Values from 1998 are preliminary. Units are pounds (whole weight).

Gnd	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
722											
723											
727											
728											
729											
732											
733											
736											
737											
740											
741											
744											
748											
Unclassified Foreign								1,800			
All gnds								1,800			

Gnd	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
722											
723											
727											
728											
729											
732											
733											
736											
737											
740											
741											
744											
748											
Unclassified Foreign	97			8			56	83		6	
All gnds	97			8			56	83		6	

2). North Carolina, South Carolina, and Georgia landings not classified to gear, 1977-1998

Table 3h. Reported commercial landings by capture grid and calendar year for Atlantic Ocean greater amberjack in the southeastern United States, 1977-1998, for *Surface Longline* captures only (note 2). Values from 1998 are preliminary. Units are pounds (whole weight).

Grid	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
722											
723											
727											
728											
729											
732											
733											
736											
737											
740											
741											
744											
748											
Unclassified Foreign											
All grids											

Grid	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
722					0	0	0	63	0	0	0
723					0	0	0	20	0	0	0
727											
728		0	0	71	606	0	0	0	0	0	834
729											
732					0	0	0	0	1,307	0	52
733					0	0	0	0	274	0	0
736					0	0	0	0	0	9	0
737											
740											
741					0	0	0	51	0	0	0
744					0	0	0	0	0	0	25
748											
Unclassified Foreign		137	0	0	0	42	17	259	354	1,052	0
All grids		137	0	71	606	42	17	667	1,661	1,061	911

Table 3i. Reported commercial landings by capture grid and calendar year for Atlantic Ocean greater amberjack in the southeastern United States, 1977-1998, for *Other Gears* captures only (note 2). Values from 1998 are preliminary. Units are pounds (whole weight).

Gnd	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
722											
723											
727											
728											
729											
732											
733											
736											
737											
740											
741											
744											
748											
Unclassified							629			2,701	6,201
Foreign											
All grids							629			2,701	6,201

Gnd	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
722											3,881
723				10							24,667
727											
728											
729											15,590
732											
733											2,557
736											
737											385
740											
741											
744											364
748											17,907
Unclassified	284	7,252	1,787	8,330	1,207	689	823	433	915	45	1,710
Foreign											
All grids	284	7,252	1,787	8,340	1,207	689	823	433	915	45	67,061

2). North Carolina, South Carolina, and Georgia landings not classified to gear, 1977-1998

Table 3j. Pounds landed (whole weight) by capture grid for Atlantic Ocean greater amberjack in the southeastern United States, 1977-1998, for All Gears captures only (note 2).

Gnd	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
1	0	0	0	0	1,232	1,945	4,751	4,297	9,669	65,557	119,691
722	0	1,664	0	1,256	11,073	3,646	3,352	11,128	8,832	17,034	34,837
723	0	0	0	0	0	0	0	344	1,374	1,893	3,848
727	0	0	0	166	26	43	136	364	98	84	3,538
728	0	312	1,872	2,484	1,988	8,944	1,044	1,197	13,828	51,615	194,203
729	0	7,488	7,696	6,055	8,462	15,118	15,599	17,098	13,225	16,789	38,590
733	0	0	0	0	0	0	0	0	0	0	0
736	9,464	17,264	21,320	5,604	9,444	9,943	9,478	10,240	18,419	22,661	17,837
737	0	0	0	0	0	0	0	0	0	0	0
740	0	12,376	1,872	16,034	5,357	6,235	8,240	51,833	43,526	23	0
741	0	0	0	0	0	0	0	0	0	123,961	413,896
744	0	0	312	1,580	366	930	391	1,477	6,043	17,383	187,293
748	0	0	0	0	13,868	93,629	63,466	100,980	44,719	94,889	269,313
Unclassified	58,069	128	5,950	29,758	54,631	55,247	26,495	13,684	20,317	103,143	107,116
Foreign	0	0	0	0	0	0	0	0	0	0	0
All gnds	70,237	44,640	63,982	76,632	106,449	195,680	132,952	212,641	180,050	515,032	1,390,162

Gnd	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	92,176	32,906	56,994	196,042	125,544	83,538	88,962	135,642	65,388	88,201	105,893
722	284	0	280	551	0	14	780	150,710	116,167	73,706	83,259
723	55,284	53,846	75,967	156,998	169,052	199,274	272,818	803	0	0	0
727	0	0	0	0	0	0	0	0	0	0	0
728	239,680	183,531	193,361	169,281	153,183	175,042	307,977	344,578	305,880	221,912	258,674
729	0	0	0	0	423	149	0	0	0	0	0
732	17,473	79,280	95,045	91,100	185,570	169,669	129,363	63,332	55,324	83,931	21,444
733	0	0	0	1,218	5,955	2,784	36,260	0	0	0	0
736	11,350	17,176	27,045	50,443	49,963	66,557	15,239	78,227	68,456	69,893	68,792
737	0	0	0	3,519	6,399	2,200	61,761	165	0	0	0
740	54,133	0	0	76,697	231,078	58,263	50,690	345	0	0	0
741	235,454	440,631	281,698	6,981	8,929	2,117	3,583	93,918	76,232	57,881	31,397
744	71,325	127,290	167,424	142,615	97,843	107,873	250,923	385,120	497,370	350,354	231,145
748	368,705	161,329	778,918	1,040,974	879,004	633,775	329,490	284,298	21,532	50,848	56,865
Unclassified	120,107	196,567	237,724	396,060	304,282	399,822	406,548	370,175	337,347	405,476	270,639
Foreign	0	0	0	0	0	0	0	0	0	0	0
All gnds	1,265,971	1,292,556	1,914,456	2,332,479	2,217,225	1,901,077	1,954,394	1,907,313	1,543,696	1,402,202	1,128,108

2). North Carolina, South Carolina, and Georgia landings not classified to gear, 1977-1998

Table 4. Reported commercial landings (proportion) by calendar year and month of Atlantic Ocean greater amberjack in the southeastern United States, 1977-1998. The values for 1998 are preliminary. Units are in pounds (whole weight).

Year	Month												
	Unknown	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1977	0.0%	7.9%	12.2%	13.2%	8.4%	16.4%	7.3%	9.7%	3.0%	11.3%	4.9%	3.6%	2.1%
1978	0.0%	6.5%	11.1%	10.6%	4.3%	16.9%	23.6%	7.9%	3.9%	3.4%	1.3%	3.4%	7.0%
1979	0.0%	8.6%	8.4%	12.1%	9.5%	21.3%	9.5%	9.2%	7.2%	2.1%	2.4%	2.8%	7.0%
1980	0.0%	11.0%	19.7%	19.6%	16.6%	9.5%	2.9%	5.6%	4.4%	3.7%	2.3%	2.4%	2.4%
1981	0.0%	9.7%	13.2%	11.6%	16.8%	10.8%	6.3%	4.1%	2.7%	1.7%	2.5%	10.8%	9.9%
1982	0.0%	10.0%	10.5%	13.4%	9.4%	7.7%	8.4%	5.3%	3.4%	1.7%	8.0%	12.0%	10.3%
1983	0.0%	6.8%	11.0%	18.3%	6.1%	15.7%	10.4%	2.7%	1.8%	4.0%	2.0%	11.1%	10.1%
1984	0.0%	8.5%	6.9%	9.1%	24.0%	9.9%	14.3%	1.4%	2.3%	5.6%	4.2%	7.0%	6.7%
1985	0.0%	9.4%	4.8%	3.2%	38.7%	11.5%	3.6%	5.5%	2.1%	3.7%	5.4%	4.6%	7.7%
1986	0.0%	3.7%	5.5%	7.1%	26.9%	11.4%	9.5%	3.7%	4.8%	5.8%	5.1%	9.8%	6.7%
1987	0.0%	1.8%	2.9%	6.8%	25.6%	30.0%	7.4%	3.6%	3.1%	5.4%	3.0%	5.7%	4.7%
1988	0.0%	4.2%	6.6%	8.2%	17.3%	14.3%	15.6%	7.2%	4.4%	5.3%	6.1%	5.8%	5.1%
1989	0.0%	6.9%	5.7%	10.9%	16.0%	14.1%	10.9%	5.6%	4.1%	3.6%	5.9%	9.2%	7.3%
1990	0.0%	5.0%	3.5%	16.6%	17.0%	20.9%	10.6%	3.9%	4.8%	5.1%	3.3%	5.1%	4.4%
1991	0.0%	3.7%	8.0%	12.9%	23.9%	18.7%	10.4%	4.5%	3.9%	4.2%	4.0%	3.0%	3.0%
1992	0.0%	3.4%	7.5%	19.1%	10.7%	34.3%	5.5%	3.5%	2.6%	2.8%	4.3%	2.3%	4.1%
1993	0.0%	6.4%	8.2%	21.2%	5.4%	25.0%	5.9%	4.2%	4.1%	5.5%	4.2%	3.7%	6.2%
1994	0.0%	4.4%	9.6%	18.0%	7.8%	18.4%	8.5%	5.9%	4.9%	4.4%	7.7%	4.9%	5.6%
1995	0.0%	9.0%	9.2%	16.1%	6.3%	20.2%	6.4%	7.3%	5.5%	5.6%	4.9%	4.6%	5.0%
1996	0.0%	8.8%	11.5%	8.8%	7.4%	17.4%	7.4%	5.0%	9.5%	6.4%	7.3%	4.0%	6.4%
1997	0.0%	6.1%	6.6%	17.9%	5.8%	19.1%	8.3%	8.2%	7.1%	6.3%	6.3%	4.5%	3.9%
1998	0.0%	12.3%	10.1%	13.3%	7.7%	20.2%	7.5%	7.4%	5.7%	6.3%	3.9%	4.0%	1.6%
All years	2.0%	5.7%	7.5%	14.2%	12.9%	20.5%	8.3%	5.2%	4.7%	4.8%	4.9%	4.6%	4.8%

Table 5. Estimated recreational harvest by source and calendar year for Atlantic Ocean greater amberjack in the southeastern United States, 1981- 1998. Values for 1998 are preliminary. Units are number of fish.

MRFSS includes Monroe county recreational catches (i.e., Florida Keys) in the Florida West Coast catch estimates.
 MRFSS estimates in this table only include catches from Florida East Coast.

Source	Year	Catch(nos)	Var(catch)(10,000s)	Yield(lbs)
MRFSS	1981	48,093	32,176	1,344,350
MRFSS	1982	14,911	3,371	493,510
MRFSS	1983	21,508	3,579	207,396
MRFSS	1984	50,191	10,419	1,439,178
MRFSS	1985	64,213	19,920	1,347,144
MRFSS	1986	69,173	23,988	1,568,423
MRFSS	1987	83,066	78,322	2,640,791
MRFSS	1988	63,751	16,731	1,787,420
MRFSS	1989	67,443	50,449	1,625,655
MRFSS	1990	59,199	11,948	980,989
MRFSS	1991	52,696	6,397	1,041,607
MRFSS	1992	55,809	3,802	1,101,868
MRFSS	1993	37,484	3,782	577,566
MRFSS	1994	78,338	14,661	1,626,112
MRFSS	1995	27,564	2,599	622,806
MRFSS	1996	52,750	9,658	987,464
MRFSS	1997	26,003	2,717	494,615
MRFSS	1998	20,470	2,094	394,308

Source	Year	Catch(nos)	Var(catch)(10,000s)	Yield(lbs)
HEADBOAT	1986	12,791		118,452
HEADBOAT	1987	17,260		209,410
HEADBOAT	1988	10,564		168,502
HEADBOAT	1989	11,636		97,363
HEADBOAT	1990	7,822		105,388
HEADBOAT	1991	8,709		143,499
HEADBOAT	1992	7,975		157,095
HEADBOAT	1993	7,066		156,969
HEADBOAT	1994	6,911		120,588
HEADBOAT	1995	4,615		78,886
HEADBOAT	1996	5,052		92,669
HEADBOAT	1997	2,812		50,329

Source	Year	Catch(nos)	Var(catch)(10,000s)	Yield(lbs)
MRFSS+ HEADBOAT	1981	48,093	32,176	1,344,350
MRFSS+ HEADBOAT	1982	14,911	3,371	493,510
MRFSS+ HEADBOAT	1983	21,508	3,579	207,396
MRFSS+ HEADBOAT	1984	50,191	10,419	1,439,178
MRFSS+ HEADBOAT	1985	64,213	19,920	1,347,144
MRFSS+ HEADBOAT	1986	81,964	23,988	1,686,875
MRFSS+ HEADBOAT	1987	100,326	78,322	2,850,202
MRFSS+ HEADBOAT	1988	74,315	16,731	1,955,921
MRFSS+ HEADBOAT	1989	79,079	50,449	1,723,018
MRFSS+ HEADBOAT	1990	67,021	11,948	1,086,377
MRFSS+ HEADBOAT	1991	61,405	6,397	1,185,106
MRFSS+ HEADBOAT	1992	63,784	3,802	1,258,963
MRFSS+ HEADBOAT	1993	44,550	3,782	734,535
MRFSS+ HEADBOAT	1994	85,249	14,661	1,746,701
MRFSS+ HEADBOAT	1995	32,179	2,599	701,692
MRFSS+ HEADBOAT	1996	57,802	9,658	1,080,133
MRFSS+ HEADBOAT	1997	28,815	2,717	544,944
MRFSS+ HEADBOAT	1998	20,470	2,094	394,308

Table 6. Estimated recreational catches of the Atlantic Ocean greater amberjack for the southeastern United States by fishery, state, and calendar year, 1981-1998. Values for 1998 are preliminary. Units are number of fish. MRFSS includes Monroe county recreational catches (i.e., Florida Keys) in the Florida West Coast catch estimates; MRFSS estimates in this table only include catches from Florida East Coast.

Year	Fishery	FLE	GA	SC	NC	All states
1981	Shore	5,807				5,807
	Private	29,294				29,294
	Charter/Hbt	9,510		72	3,410	12,992
	All modes	44,611		72	3,410	48,093
1982	Shore					
	Private	12,571	815		582	13,968
	Charter/Hbt	943				943
	All modes	13,514	815		582	14,911
1983	Shore					
	Private	11,037				11,037
	Charter/Hbt	9,702			769	10,471
	All modes	20,739			769	21,508
1984	Shore					
	Private	20,934	1,077	6,540		28,551
	Charter/Hbt	15,602	435	3,285	2,318	21,640
	All modes	36,536	1,512	9,825	2,318	50,191
1985	Shore					
	Private	18,372	438	12,126	8,580	39,516
	Charter/Hbt	23,730	967			24,697
	All modes	42,102	1,405	12,126	8,580	64,213
1986	Shore			4,253		4,253
	Headboat	9,952		1,906	933	12,791
	Charter	11,360	489	719	25,350	37,918
	Private	12,405	113	10,177	4,307	27,002
	All modes	33,717	602	17,055	30,590	81,964
1987	Shore				1,997	1,997
	Headboat	12,367		3,744	1,149	17,260
	Charter	52,786	729	1,053	3,379	57,947
	Private	15,923	503	0	6,696	23,122
	All modes	81,076	1,232	4,797	13,221	100,326
1988	Shore					
	Headboat	7,475		2,093	996	10,564
	Charter	9,961		14,977	1,177	26,115
	Private	26,848	2,855	704	7,229	37,636
	All modes	44,284	2,855	17,774	9,402	74,315
1989	Shore				871	871
	Headboat	8,542		1,754	1,340	11,636
	Charter	24,425		3,009	1,063	28,497
	Private	34,606		1,467	2,002	38,075
	All modes	67,573		6,230	5,276	79,079

Table 6. (Cont.)

Year	Fishery	FL	GA	SC	NC	All states
1990	Shore	5,042			701	5,743
	Headboat	4,069		2,543	1,210	7,822
	Charter	17,006		538	1,548	19,092
	Private	22,673	1,823	6,004	3,864	34,364
	All modes	48,790	1,823	9,085	7,323	67,021
1991	Shore				3,521	3,521
	Headboat	3,077		3,800	1,832	8,709
	Charter	29,767	472	475	1,152	31,866
	Private	11,536		3,963	1,810	17,309
	All modes	44,380	472	8,238	8,315	61,405
1992	Shore	1,448				1,448
	Headboat	5,209		1,237	1,529	7,975
	Charter	16,240	1,838	538	851	19,467
	Private	32,016	188	1,314	1,376	34,894
	All modes	54,913	2,026	3,089	3,756	63,784
1993	Shore	4,093				4,093
	Headboat	4,373		1,858	835	7,066
	Charter	16,464		1,861	2,809	21,134
	Private	5,829			6,428	12,257
	All modes	30,759		3,719	10,072	44,550
1994	Shore					
	Headboat	4,168	124	2,032	587	6,911
	Charter	49,957	4,567		3,279	57,803
	Private	16,039		1,893	2,603	20,535
	All modes	70,164	4,691	3,925	6,469	85,249
1995	Shore					
	Headboat	2,041	224	1,655	695	4,615
	Charter	18,278	348		1,760	20,386
	Private	3,696			3,482	7,178
	All modes	24,015	572	1,655	5,937	32,179
1996	Shore					
	Headboat	2,220	316	1,780	736	5,052
	Charter	16,053	1,009	257	3,236	20,555
	Private	22,812	1,264		8,119	32,195
	All modes	41,085	2,589	2,037	12,091	57,802
1997	Shore					
	Headboat	1,014	125	1,417	256	2,812
	Charter	18,081	557	2,260	1,543	22,441
	Private	1,463		388	1,711	3,562
	All modes	20,558	682	4,065	3,510	28,815
1998	Shore					
	Headboat					
	Charter	12,322	287		1,859	14,468
	Private	4,515	264		1,223	6,002
	All modes	16,837	551		3,082	20,470

Table 7. Estimated recreational harvest of Atlantic Ocean greater amberjack MRFSS catch (percent, A+B1) by zone (TTS and EEZ) and calendar year. Values for 1998 are preliminary.

Year	Zone	Florida (east)	Georgia	S. Carolina	N. Carolina	All States
1981	TTS	34.33			84.31	37.83
	EEZ	65.67		100	15.69	62.17
1982	TTS	9.05			100	12.11
	EEZ	90.95	100			87.89
1983	TTS	23.39				22.55
	EEZ	76.61			100	77.45
1984	TTS	35.63		22.19		30.28
	EEZ	64.37	100	77.81	100	69.72
1985	TTS	10.42		36.79		13.78
	EEZ	89.58	100	63.21	100	86.22
1986	TTS	22.04		28.07	0.2	13.81
	EEZ	77.96	100	71.93	99.8	86.19
1987	TTS	15.19		3.51	22.04	15.82
	EEZ	84.81	100	96.49	77.96	84.18
1988	TTS	33.39			14.18	21.15
	EEZ	66.61	100	100	85.82	78.85
1989	TTS	23.13			40.57	22.61
	EEZ	76.87		100	59.43	77.39
1990	TTS	23.81			31.42	21.23
	EEZ	76.19	100	100	68.58	78.77
1991	TTS	33.96			62.8	34.35
	EEZ	66.04	100	100	37.2	65.65
1992	TTS	45.91			100	40.89
	EEZ	54.09	100	100		59.11
1993	TTS	64.52			44.35	56.42
	EEZ	35.38		100	55.65	43.58
1994	TTS	41.67			13.92	36.15
	EEZ	58.33	100	100	86.08	63.85
1995	TTS	62.22			5.3	50.61
	EEZ	37.78	100		94.7	49.39
1996	TTS	63.56	39.68		7.41	50.13
	EEZ	36.44	60.32	100	92.59	49.87
1997	TTS	23.69		9.4	9.28	19.92
	EEZ	76.31	100	90.6	90.72	80.08
1998	TTS	14.17			1.75	11.92
	EEZ	85.83	100		98.25	88.08

Table 8. Estimates of fractions of Atlantic Ocean greater amberjack caught and released by recreational fishermen by fishing mode and calendar year for the period 1981-1998, based on MFRSS A+B1 and B2 catch data. Values for 1998 are preliminary. Charter boat data are included with headboats before 1986.

Year	Shore			Charter			Private			Charter/Headboat			All		
	Kept	Released	% Released	Kept	Released	% Released	Kept	Released	% Released	Kept	Released	% Released	Kept	Released	% Released
1981	5,801						29,294	18,848	39.15	12,992	1,937	12.97	48,093	20,785	30.18
1982		1,278	100				13,968	13,447	49.05	943	8,701	90.22	14,911	23,426	61.11
1983							11,037	5,148	31.81	10,471	477	4.36	21,508	5,625	20.73
1984							28,551	25,394	47.07	21,640	2,064	8.71	50,191	27,458	35.36
1985							39,516	47,303	54.48	24,697	14,703	37.32	64,213	62,006	49.13
1986	4,253			37,918	15,247	28.68	27,002	41,564	60.62				69,173	56,811	45.09
1987	1,997			57,947	5,677	8.92	23,122	38,264	62.33				83,066	43,941	34.6
1988		3,359	100	26,115	9,288	26.24	37,636	16,908	31				63,751	29,565	31.68
1989	871	372	29.53	28,497	3,699	11.49	38,075	22,312	36.95				67,443	26,383	28.12
1990	5,743			19,092	6,888	26.51	34,364	17,917	34.27				59,199	24,805	29.53
1991	3,521	22,208	86.32	31,866	5,577	14.89	17,309	22,925	56.98				52,696	50,710	49.04
1992	1,448			19,467	2,688	12.92	34,894	44,337	55.96				55,809	47,225	45.83
1993	4,093	616	13.08	21,134	9,112	30.13	12,257	20,282	62.33				37,484	30,010	44.46
1994				57,803	11,197	16.23	20,535	8,545	29.38				78,338	19,742	20.13
1995				20,386	3,223	13.65	7,178	4,108	36.4				27,564	7,331	21.01
1996		2,964	100	20,555	5,535	21.22	32,195	31,265	49.27				52,750	39,764	42.98
1997		476	100	22,441	2,454	9.86	3,562	18,339	83.74				26,003	21,269	44.99
1998				14,468	1,008	6.51	6,002	8,605	62.03				20,470	10,613	34.57

Table 9. Disposition of Atlantic Ocean greater amberjack recreational harvest by mode and two-month wave based on MRFSS A+B1 and B2 catch data, 1981-1998. Values for 1998 are preliminary. Units are number of fish.

Wave	Shore		Charter		Private		Charter/Headboat		All	
	Kept	% Released	Kept	% Released	Kept	% Released	Kept	% Released	Kept	% Released
Jan-Feb	1,448		20,819	14.9	9,028	78.66	4,298	8,701	35,593	58.18
Mar-Apr	355		111,247	8.93	110,778	29.41	8,973	3,009	231,353	19.79
May-Jun	6,759	4.668	159,036	15.98	128,419	50.65	29,225	3,009	324,439	34.49
Jul-Aug	4,222	22,929	28,394	28.58	118,735	54.18	11,440	591	183,791	51.69
Sep-Oct	5,814	3,658	47,508	34.78	32,114	45.15	15,712	15,581	101,146	41.24
Nov-Dec	9,135		10,887	11.52	15,423	63.25	1,095	27,937	36,340	43.46
Total	27,733	31,283	377,689	17.8	418,487	49.41	70,743	27,882	892,662	38.02

Table 10a (continued).

Sector	Calendar Year	Mode	State											
			Monroe county		Florida east coast		Georgia		South Carolina		North Carolina		All States	
			Sample length (cm)	Mean	Sample length (cm)	Mean	Sample length (cm)	Mean	Sample length (cm)	Mean	Sample length (cm)	Mean	Sample length (cm)	Mean
Headboat (NMFS)	1981				208	84.75			1	20	31	31.42	240	60.26
	1982			82	58.39						15	82.07	97	82.05
	1983	1	91	242	53.63			12	54.87	14	66.29	269	54.48	
	1984	1	52	197	65.6			35	69.86	11	82.18	244	86	
	1985			164	54.92	1	119	7	70.29	29	65.97	201	57.29	
	1986	5	52.4	181	45.17			4	55	25	90.4	215	50.76	
	1987	2	58	192	57.46			2	27	53	85.13	249	63.11	
	1988	1	62	48	76.38			29	57.52	52	81.87	130	74.25	
	1989			116	60.05			23	47.83	37	60.37	176	70.37	
	1990			76	73.03			20	68.4	16	70.63	112	71.88	
	1991			22	77.55			22	67.55	24	78.42	68	74.62	
	1992	1	73	95	92.16			23	62.57	28	76.25	147	84.94	
	1993			39	86.36			43	81.72	37	80.41	119	83.49	
	1994			53	80.57			46	80.28	18	83.66	120	80.85	
	1995			27	81.81	3	78.33	38	83.33	40	84.2	108	83.87	
	1996			13	73.23	3	97.33	33	80.18	33	83.94	79	80.81	
	1997			25	76.88	3	86.33	31	88.39	17	88.18	76	84.51	
	All	11	59.64	1780	62.81	10	91.1	397	72.4	480	76.31	2848	66.98	

Sector	Calendar Year	Mode	State											
			Monroe county		Florida east coast		Georgia		South Carolina		North Carolina		All States	
			Sample length (cm)	Mean	Sample length (cm)	Mean	Sample length (cm)	Mean	Sample length (cm)	Mean	Sample length (cm)	Mean	Sample length (cm)	Mean
Other	1990							3	97.33				3	97.33
	1992												11	95.73
	All							3	97.33				14	96.07
Recreational	1985									15	97.6	15	97.6	
	1989					26	98.65					28	98.65	
	All					26	98.65			15	96.7	41	96.27	
Unknown	1983											1	144	
	1995					26						5	87.8	
	All					26				6	97.17	6	97.17	

Table 11a. Estimated total landed commercial catch at length by Fishery, Gear, and calendar year for the Atlantic greater Amberjack.

Sector and Mode are	com hook & line.											
CM	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
3	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
8	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
9	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
10	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
12	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
13	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
14	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
15	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
16	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
17	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
18	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
19	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
20	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
21	0.	0.	0.	588.	0.	0.	0.	0.	0.	0.	0.	0.
22	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
23	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
24	0.	0.	0.	1307.	0.	0.	0.	0.	0.	0.	0.	0.
25	0.	0.	0.	588.	0.	0.	0.	0.	0.	0.	0.	0.
26	0.	0.	0.	0.	209.	0.	0.	0.	0.	0.	0.	0.
27	0.	0.	0.	0.	209.	0.	0.	0.	0.	0.	0.	0.
28	0.	0.	0.	0.	596.	0.	0.	0.	0.	0.	0.	0.
29	0.	0.	0.	0.	512.	0.	0.	0.	0.	0.	0.	0.
30	0.	0.	558.	0.	21.	0.	0.	0.	0.	0.	0.	0.
31	0.	0.	0.	263.	178.	0.	0.	0.	0.	0.	0.	0.
32	0.	0.	0.	263.	461.	19.	0.	0.	0.	7.	0.	0.
33	0.	0.	1116.	132.	0.	0.	0.	0.	0.	0.	0.	0.
34	2153.	813.	1674.	132.	21.	19.	0.	0.	0.	111.	84.	0.
35	0.	0.	0.	132.	21.	0.	0.	0.	0.	30.	0.	0.
36	0.	2439.	558.	132.	0.	38.	0.	0.	106.	0.	0.	0.
37	4307.	813.	0.	132.	378.	58.	0.	145.	106.	30.	0.	52.
38	0.	4066.	0.	132.	41.	0.	0.	289.	106.	111.	0.	0.
39	2153.	1626.	0.	263.	125.	0.	0.	0.	106.	0.	0.	0.
40	0.	2439.	0.	395.	199.	0.	0.	0.	106.	0.	0.	0.
41	2153.	3253.	558.	132.	0.	0.	0.	289.	0.	0.	0.	0.
42	0.	0.	558.	526.	0.	0.	132.	289.	106.	0.	0.	0.
43	10767.	2439.	0.	526.	199.	0.	0.	289.	0.	0.	0.	20.
44	0.	0.	558.	132.	103.	0.	0.	0.	221.	0.	0.	52.
45	4307.	813.	558.	263.	378.	36.	0.	20.	0.	111.	0.	0.
46	4307.	0.	0.	132.	220.	36.	0.	20.	106.	0.	31.	72.
47	6460.	0.	0.	132.	178.	36.	0.	0.	106.	30.	222.	52.
48	0.	813.	0.	0.	199.	36.	0.	145.	0.	0.	222.	104.
49	0.	813.	0.	132.	199.	36.	148.	39.	211.	0.	73.	207.
50	2153.	2439.	0.	0.	199.	99.	0.	164.	211.	442.	84.	311.
51	0.	3253.	1116.	395.	556.	0.	253.	0.	317.	111.	42.	155.

Table 11a. (cont.)

52	2153.	3253.	558.	263.	755.	0.	132.	0.	0.	0.	42.	155.
53	2153.	2439.	0.	0.	460.	55.	16.	20.	0.	221.	264.	52.
54	0.	0.	0.	0.	178.	19.	237.	145.	326.	0.	84.	207.
55	0.	0.	1116.	132.	523.	110.	87.	0.	0.	0.	126.	311.
56	4307.	813.	558.	132.	62.	38.	0.	0.	106.	111.	126.	279.
57	0.	0.	0.	983.	544.	99.	364.	20.	221.	221.	222.	155.
58	0.	0.	0.	851.	345.	108.	43.	145.	221.	221.	337.	362.
59	4307.	1626.	0.	132.	996.	151.	208.	164.	326.	553.	84.	55.
60	2153.	1626.	1116.	263.	523.	129.	0.	20.	211.	221.	402.	175.
61	4307.	0.	0.	263.	940.	0.	132.	20.	0.	362.	414.	104.
62	0.	0.	0.	3071.	146.	66.	103.	39.	432.	0.	84.	207.
63	4307.	1626.	0.	1307.	1311.	36.	148.	0.	538.	7.	180.	279.
64	0.	813.	1116.	719.	500.	72.	148.	39.	106.	111.	180.	227.
65	2153.	813.	0.	132.	240.	0.	76.	0.	106.	332.	115.	155.
66	0.	1626.	558.	0.	187.	36.	87.	79.	106.	235.	498.	314.
67	0.	0.	2231.	0.	241.	36.	168.	297.	227.	111.	426.	211.
68	2153.	0.	558.	263.	324.	36.	372.	79.	0.	0.	721.	311.
69	0.	2439.	558.	1176.	21.	55.	384.	224.	441.	117.	763.	207.
70	0.	813.	558.	526.	187.	262.	469.	599.	106.	449.	721.	573.
71	0.	1626.	0.	132.	41.	19.	356.	39.	441.	553.	595.	155.
72	4307.	813.	0.	851.	178.	135.	233.	59.	326.	781.	234.	541.
73	2153.	0.	0.	0.	199.	264.	350.	39.	326.	451.	985.	362.
74	0.	1626.	558.	1176.	62.	135.	300.	243.	0.	111.	391.	211.
75	4307.	813.	1116.	0.	261.	138.	311.	289.	112.	0.	216.	55.
76	2153.	2439.	558.	132.	187.	91.	472.	329.	106.	580.	384.	107.
77	0.	1626.	558.	719.	166.	157.	262.	184.	329.	37.	427.	72.
78	4307.	813.	0.	0.	124.	325.	485.	458.	317.	235.	347.	134.
79	0.	1626.	558.	0.	41.	19.	656.	916.	332.	34.	186.	121.
80	2153.	813.	1674.	719.	199.	438.	429.	171.	106.	117.	282.	150.
81	0.	813.	1116.	132.	62.	399.	728.	976.	437.	377.	306.	247.
82	2153.	1626.	1674.	1176.	125.	328.	480.	812.	333.	284.	432.	72.
83	0.	813.	0.	132.	345.	601.	800.	1133.	329.	558.	425.	72.
84	0.	1626.	558.	1439.	199.	240.	645.	1593.	211.	917.	553.	156.
85	2153.	813.	558.	588.	187.	474.	985.	1804.	769.	618.	810.	459.
86	0.	813.	558.	719.	104.	618.	1077.	1365.	329.	580.	877.	487.
87	0.	813.	1116.	719.	440.	744.	1102.	1309.	320.	614.	1548.	672.
88	2153.	1626.	1674.	719.	104.	1220.	859.	1569.	112.	1725.	854.	461.
89	2153.	813.	1116.	719.	312.	939.	1834.	1905.	1009.	1589.	1416.	619.
90	0.	0.	0.	132.	125.	1183.	1696.	3166.	438.	2785.	1456.	926.
91	0.	2439.	558.	132.	229.	1400.	1706.	3103.	1758.	2448.	1625.	789.
92	0.	1626.	558.	588.	199.	1463.	1753.	3953.	1336.	2765.	1029.	995.
93	0.	1626.	558.	132.	334.	1551.	2080.	1803.	2066.	3471.	1463.	2192.
94	2153.	0.	1116.	851.	125.	2327.	1068.	3730.	1644.	2300.	1166.	1192.
95	0.	0.	0.	2483.	375.	1693.	2083.	3861.	2209.	2520.	3046.	1765.
96	2153.	813.	1116.	1763.	417.	2563.	1100.	3949.	4079.	2595.	1847.	1675.
97	0.	1626.	558.	1763.	699.	2050.	2027.	2137.	3296.	3881.	2579.	1668.
98	0.	1626.	1116.	588.	637.	2140.	2419.	3489.	2063.	2854.	1924.	1974.
99	0.	813.	0.	1176.	958.	1928.	1693.	2650.	2936.	2169.	1019.	1667.
100	4307.	2439.	0.	2351.	646.	1940.	1529.	2134.	4073.	2123.	1666.	1258.
101	0.	2439.	1116.	2158.	1042.	2133.	1586.	1691.	2193.	1893.	1690.	1635.
102	2153.	813.	1116.	263.	1721.	2119.	1502.	570.	2631.	1317.	1596.	1250.
103	2153.	0.	0.	1895.	1124.	3051.	1458.	2341.	1749.	1567.	1469.	1238.
104	2153.	813.	1116.	1763.	1783.	1543.	1433.	1731.	4082.	710.	714.	1211.
105	0.	0.	558.	3659.	2116.	2017.	1062.	1507.	1658.	1412.	1044.	1455.
106	0.	0.	1116.	1307.	854.	1794.	2156.	1332.	2532.	267.	1313.	991.

Table 11a. (cont.)

107	0.	1626.	558.	588.	1834.	2041.	1200.	1711.	1208.	808.	659.	575.
108	2153.	1626.	1116.	1176.	1750.	2177.	1715.	234.	1550.	347.	618.	412.
109	0.	0.	1116.	2614.	1395.	1500.	1042.	1193.	764.	1313.	431.	718.
110	0.	0.	1116.	1895.	1596.	1257.	1130.	643.	547.	805.	294.	211.
111	0.	0.	1674.	4834.	1146.	1350.	846.	1052.	339.	440.	413.	508.
112	0.	0.	1116.	719.	2126.	1450.	680.	775.	889.	63.	276.	172.
113	0.	0.	558.	588.	1460.	1132.	1059.	600.	662.	349.	558.	195.
114	0.	0.	0.	719.	1667.	1278.	1815.	277.	1537.	509.	215.	255.
115	0.	0.	1116.	851.	1355.	1273.	1119.	20.	221.	1140.	228.	120.
116	0.	0.	1116.	588.	2085.	1043.	1100.	264.	662.	237.	497.	263.
117	0.	0.	0.	588.	2127.	1058.	687.	386.	1202.	616.	270.	46.
118	0.	0.	0.	1307.	2231.	760.	428.	0.	106.	63.	270.	46.
119	2153.	813.	0.	1763.	1668.	1053.	698.	498.	1323.	63.	245.	323.
120	0.	0.	1116.	263.	1376.	1061.	654.	234.	221.	223.	73.	232.
121	0.	813.	558.	588.	1356.	519.	423.	0.	0.	0.	168.	263.
122	0.	0.	558.	0.	959.	826.	671.	234.	0.	0.	414.	232.
123	0.	0.	0.	588.	1147.	536.	362.	0.	221.	0.	270.	52.
124	0.	0.	0.	588.	626.	398.	116.	274.	106.	286.	228.	46.
125	0.	0.	0.	719.	1356.	639.	441.	0.	0.	63.	54.	120.
126	0.	0.	1116.	0.	980.	603.	412.	0.	553.	0.	102.	46.
127	0.	813.	558.	1895.	596.	199.	159.	0.	0.	0.	102.	165.
128	0.	0.	0.	0.	542.	169.	325.	0.	106.	0.	157.	60.
129	0.	0.	0.	0.	1043.	664.	0.	145.	0.	0.	0.	60.
130	0.	0.	0.	0.	626.	381.	0.	0.	0.	334.	186.	0.
131	0.	0.	0.	0.	417.	66.	232.	0.	221.	0.	60.	0.
132	0.	0.	0.	0.	730.	66.	116.	0.	221.	0.	0.	0.
133	0.	0.	0.	0.	313.	19.	0.	0.	0.	0.	0.	0.
134	0.	0.	0.	0.	313.	66.	159.	0.	221.	0.	42.	0.
135	0.	0.	558.	0.	521.	133.	0.	0.	0.	0.	0.	52.
136	0.	0.	0.	0.	0.	66.	0.	234.	0.	0.	0.	0.
137	0.	0.	0.	0.	313.	66.	0.	0.	0.	0.	0.	0.
138	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
139	0.	0.	0.	0.	313.	66.	232.	0.	0.	0.	42.	120.
140	0.	0.	0.	0.	417.	66.	43.	0.	0.	0.	42.	0.
141	0.	0.	0.	0.	104.	0.	0.	0.	0.	0.	31.	0.
142	0.	0.	0.	0.	209.	0.	0.	0.	0.	0.	0.	0.
143	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
144	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
145	0.	0.	0.	0.	209.	66.	116.	0.	0.	0.	0.	0.
146	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
147	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	60.
148	0.	0.	0.	0.	104.	0.	0.	0.	0.	0.	0.	0.
149	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	31.	0.
150	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
151	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
152	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
153	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
154	0.	0.	0.	0.	0.	36.	0.	0.	0.	0.	0.	0.
155	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
156	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
157	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
158	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
159	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
160	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
161	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
162	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

Table 11a. (cont.)

163	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
164	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
165	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
166	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
167	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
168	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
169	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
170	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
171	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
172	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
173	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
174	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
175	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
176	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
177	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
178	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
179	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
180	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
181	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
182	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
183	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
184	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
185	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
186	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
187	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
188	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
189	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
190	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
191	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
192	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
193	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
194	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
195	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
196	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
197	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
198	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
199	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
All	114128.	88634.	54111.	72987.	67418.	65985.	62403.	70695.	65138.	59150.	51438.	39744.

Table 11b. Estimated total commercial catch at length by Fishery, Gear, and calendar year for the Atlantic greater amberjack stock.

Sector and Mode are	Commercial trap,f.trawl,seine,etc.												
	CM	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
3	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
8	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
9	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
10	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
12	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
13	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
14	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
15	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
16	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
17	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
18	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
19	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
20	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
21	0.	0.	0.	2.	0.	0.	0.	0.	0.	0.	0.	0.	0.
22	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
23	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
24	0.	0.	0.	5.	0.	0.	0.	0.	0.	0.	0.	0.	0.
25	0.	0.	0.	2.	0.	0.	0.	0.	0.	0.	0.	0.	0.
26	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
27	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
28	0.	0.	0.	0.	3.	0.	0.	0.	0.	0.	0.	0.	0.
29	0.	0.	0.	0.	3.	0.	0.	0.	0.	0.	0.	0.	0.
30	0.	0.	2.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
31	0.	0.	0.	3.	1.	0.	0.	0.	0.	0.	0.	0.	0.
32	0.	0.	0.	3.	2.	0.	0.	0.	0.	0.	0.	0.	0.
33	4.	0.	4.	2.	0.	0.	0.	0.	0.	0.	0.	0.	0.
34	4.	5.	6.	2.	1.	0.	0.	0.	0.	0.	0.	0.	0.
35	0.	0.	0.	2.	1.	0.	0.	0.	0.	0.	0.	0.	0.
36	4.	14.	2.	2.	0.	0.	0.	0.	0.	0.	0.	0.	0.
37	12.	5.	0.	2.	2.	0.	0.	0.	0.	0.	0.	0.	3.
38	0.	24.	0.	2.	1.	0.	0.	0.	0.	0.	0.	0.	0.
39	8.	10.	0.	3.	1.	0.	0.	0.	0.	0.	0.	0.	0.
40	0.	14.	0.	5.	1.	0.	0.	0.	0.	0.	0.	0.	0.
41	4.	19.	2.	2.	0.	0.	0.	0.	0.	0.	0.	0.	0.
42	0.	0.	2.	6.	0.	0.	0.	0.	0.	0.	0.	0.	3.
43	20.	14.	0.	6.	1.	0.	0.	0.	0.	0.	0.	0.	0.
44	0.	0.	2.	2.	3.	0.	0.	0.	0.	0.	0.	0.	3.
45	8.	5.	2.	5.	2.	0.	0.	0.	0.	0.	0.	0.	0.
46	8.	0.	0.	3.	2.	0.	0.	0.	0.	0.	0.	0.	7.
47	12.	0.	0.	2.	1.	0.	0.	0.	0.	0.	0.	0.	3.
48	0.	5.	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	7.
49	0.	5.	0.	2.	1.	0.	0.	0.	1.	0.	0.	0.	14.
50	4.	14.	0.	0.	1.	0.	0.	0.	1.	1.	0.	0.	21.
51	0.	19.	4.	5.	3.	0.	0.	0.	1.	0.	0.	0.	10.
52	4.	19.	2.	3.	4.	0.	0.	0.	0.	0.	0.	0.	10.

Table 11b. (cont.)

53	4.	14.	0.	0.	5.	0.	0.	0.	0.	0.	1.	3.
54	0.	0.	0.	0.	1.	0.	0.	0.	1.	0.	0.	14.
55	0.	0.	4.	2.	4.	0.	0.	0.	0.	0.	1.	21.
56	8.	5.	2.	2.	2.	0.	0.	0.	0.	0.	1.	21.
57	0.	0.	0.	6.	5.	0.	0.	0.	0.	0.	0.	10.
58	0.	0.	0.	5.	3.	0.	0.	0.	0.	0.	1.	24.
59	8.	10.	0.	2.	4.	0.	0.	0.	1.	1.	0.	7.
60	4.	10.	4.	3.	3.	0.	0.	0.	1.	0.	1.	14.
61	8.	0.	0.	3.	7.	0.	0.	0.	0.	1.	1.	7.
62	0.	0.	0.	10.	2.	0.	0.	0.	1.	0.	0.	14.
63	8.	10.	0.	5.	7.	0.	0.	0.	1.	0.	0.	21.
64	0.	5.	4.	3.	5.	0.	0.	0.	0.	0.	0.	17.
65	4.	5.	0.	2.	3.	0.	0.	0.	0.	1.	1.	10.
66	0.	10.	2.	0.	3.	0.	0.	1.	0.	1.	1.	24.
67	0.	0.	8.	0.	2.	0.	0.	1.	1.	0.	1.	17.
68	4.	0.	2.	3.	3.	0.	1.	1.	0.	0.	1.	21.
69	0.	14.	2.	3.	1.	0.	1.	1.	1.	0.	1.	14.
70	0.	5.	2.	6.	3.	1.	1.	1.	0.	1.	1.	42.
71	0.	10.	0.	2.	1.	0.	0.	0.	1.	1.	1.	10.
72	8.	5.	0.	5.	1.	0.	0.	1.	1.	1.	1.	42.
73	4.	0.	0.	0.	1.	1.	0.	0.	1.	1.	1.	24.
74	0.	10.	2.	3.	2.	0.	1.	1.	0.	0.	1.	17.
75	8.	5.	4.	0.	3.	0.	1.	0.	1.	0.	1.	7.
76	4.	14.	2.	3.	3.	0.	1.	1.	0.	2.	1.	10.
77	0.	10.	2.	3.	3.	0.	0.	1.	1.	0.	1.	7.
78	8.	5.	0.	0.	3.	1.	1.	1.	1.	1.	1.	21.
79	0.	10.	2.	2.	1.	0.	1.	2.	2.	1.	2.	17.
80	4.	5.	6.	5.	1.	1.	1.	1.	0.	0.	1.	17.
81	0.	5.	4.	2.	2.	1.	1.	2.	2.	1.	2.	28.
82	4.	14.	6.	3.	1.	1.	1.	2.	1.	1.	1.	7.
83	0.	5.	0.	2.	3.	1.	1.	3.	1.	1.	2.	7.
84	0.	10.	2.	6.	1.	0.	1.	4.	1.	2.	2.	17.
85	4.	5.	2.	2.	3.	1.	1.	3.	3.	1.	2.	35.
86	0.	5.	2.	3.	1.	1.	2.	4.	1.	2.	3.	38.
87	0.	5.	4.	3.	3.	1.	2.	3.	1.	2.	2.	45.
88	4.	10.	6.	3.	1.	2.	2.	4.	1.	3.	3.	35.
89	4.	5.	4.	5.	5.	1.	2.	4.	3.	3.	3.	48.
90	0.	0.	0.	2.	1.	2.	2.	5.	2.	5.	3.	69.
91	0.	14.	2.	2.	4.	2.	2.	5.	3.	4.	4.	52.
92	0.	10.	2.	2.	1.	2.	2.	6.	4.	5.	5.	69.
93	0.	10.	2.	2.	3.	3.	3.	4.	4.	4.	4.	149.
94	4.	0.	4.	5.	1.	3.	2.	7.	4.	4.	3.	83.
95	0.	0.	0.	8.	3.	3.	2.	5.	4.	4.	8.	118.
96	4.	5.	4.	5.	4.	4.	2.	7.	7.	4.	6.	114.
97	0.	10.	2.	5.	6.	3.	3.	3.	6.	5.	5.	114.
98	0.	10.	4.	3.	6.	3.	3.	6.	4.	4.	5.	135.
99	0.	5.	0.	3.	9.	3.	2.	4.	6.	3.	3.	111.
100	8.	14.	0.	6.	6.	3.	2.	3.	7.	3.	5.	86.
101	0.	14.	4.	10.	10.	3.	2.	3.	4.	4.	5.	111.
102	4.	5.	4.	3.	13.	3.	2.	1.	4.	2.	3.	90.
103	4.	0.	0.	6.	13.	5.	2.	3.	3.	2.	3.	86.
104	4.	5.	4.	5.	14.	3.	2.	3.	7.	2.	2.	83.
105	0.	0.	2.	11.	18.	3.	1.	2.	3.	2.	2.	93.
106	0.	0.	4.	5.	8.	3.	2.	2.	4.	1.	4.	69.
107	8.	10.	2.	2.	15.	3.	1.	3.	2.	1.	2.	38.

Table 11b. (cont.)

108	4.	10.	4.	3.	17.	3.	2.	0.	3.	1.	2.	28.
109	0.	0.	4.	10.	15.	3.	1.	2.	2.	2.	2.	45.
110	0.	0.	4.	6.	12.	2.	1.	1.	1.	2.	1.	14.
111	0.	0.	6.	14.	10.	2.	1.	2.	1.	1.	2.	42.
112	0.	0.	4.	3.	17.	2.	1.	1.	2.	0.	1.	10.
113	4.	0.	2.	2.	10.	2.	1.	1.	1.	1.	2.	14.
114	0.	0.	0.	3.	14.	2.	1.	0.	3.	1.	1.	17.
115	0.	0.	4.	5.	11.	2.	1.	0.	0.	2.	1.	7.
116	0.	0.	4.	2.	14.	1.	1.	0.	1.	1.	1.	17.
117	0.	0.	0.	2.	15.	2.	1.	1.	2.	1.	1.	3.
118	0.	0.	0.	5.	16.	1.	0.	0.	0.	0.	1.	3.
119	8.	5.	0.	5.	11.	1.	1.	1.	2.	0.	1.	21.
120	0.	0.	4.	3.	10.	1.	0.	0.	0.	0.	0.	14.
121	0.	5.	2.	2.	9.	1.	0.	0.	0.	0.	1.	17.
122	0.	0.	2.	0.	7.	1.	1.	0.	0.	0.	1.	14.
123	0.	0.	0.	2.	8.	1.	0.	0.	0.	0.	1.	3.
124	0.	0.	0.	2.	4.	0.	0.	1.	0.	0.	1.	3.
125	0.	0.	0.	3.	9.	1.	0.	0.	0.	0.	0.	7.
126	0.	0.	4.	0.	8.	1.	0.	0.	1.	0.	0.	3.
127	0.	5.	2.	6.	3.	0.	0.	0.	0.	0.	0.	10.
128	0.	0.	0.	0.	4.	0.	0.	0.	0.	0.	1.	3.
129	0.	0.	0.	0.	7.	1.	0.	0.	0.	0.	0.	3.
130	0.	0.	0.	0.	4.	0.	0.	0.	0.	0.	1.	0.
131	0.	0.	0.	0.	3.	0.	0.	0.	0.	0.	0.	0.
132	0.	0.	0.	0.	5.	0.	0.	0.	0.	0.	0.	0.
133	0.	0.	0.	0.	2.	0.	0.	0.	0.	0.	0.	0.
134	0.	0.	0.	0.	2.	0.	0.	0.	0.	0.	0.	0.
135	0.	0.	2.	0.	3.	0.	0.	0.	0.	0.	0.	3.
136	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
137	0.	0.	0.	0.	2.	0.	0.	0.	0.	0.	0.	0.
138	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
139	0.	0.	0.	0.	2.	0.	0.	0.	0.	0.	0.	7.
140	0.	0.	0.	0.	3.	0.	0.	0.	0.	0.	0.	0.
141	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
142	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
143	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
144	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
145	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
146	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
147	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
148	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	3.
149	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
150	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
151	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
152	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
153	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
154	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
155	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
156	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
157	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
158	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
159	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
160	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
161	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

Table 11b. (cont.)

162	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
163	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
164	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
165	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
166	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
167	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
168	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
169	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
170	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
171	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
172	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
173	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
174	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
175	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
176	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
177	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
178	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
179	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
180	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
181	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
182	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
183	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
184	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
185	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
186	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
187	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
188	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
189	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
190	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
191	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
192	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
193	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
194	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
195	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
196	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
197	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
198	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
199	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
All	245.	527.	202.	332.	543.	101.	73.	132.	130.	96.	138.	2802.

Table 11c. Estimated total commercial catch at length by Fishery, Gear, and calendar year for the Atlantic greater amberjack stock.

Sector and Mode are Commercial dive	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
3	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
8	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
9	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
10	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
12	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
13	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
14	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
15	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
16	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
17	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
18	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
19	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
20	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
21	0.	0.	0.	4.	0.	0.	0.	0.	0.	0.	0.	0.
22	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
23	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
24	0.	0.	0.	11.	0.	0.	0.	0.	0.	0.	0.	0.
25	0.	0.	0.	4.	0.	0.	0.	0.	0.	0.	0.	0.
26	0.	0.	0.	0.	6.	0.	0.	0.	0.	0.	0.	0.
27	0.	0.	0.	0.	6.	0.	0.	0.	0.	0.	0.	0.
28	0.	0.	0.	0.	16.	3.	0.	0.	0.	0.	0.	0.
29	0.	0.	0.	0.	16.	0.	0.	0.	0.	0.	0.	0.
30	0.	0.	31.	0.	3.	0.	0.	0.	0.	0.	0.	0.
31	0.	0.	0.	7.	3.	0.	0.	0.	0.	0.	0.	0.
32	0.	0.	0.	7.	9.	3.	0.	0.	0.	0.	0.	0.
33	38.	0.	62.	4.	0.	0.	0.	0.	0.	0.	0.	0.
34	38.	12.	92.	4.	3.	3.	0.	0.	0.	0.	7.	0.
35	0.	0.	0.	4.	3.	0.	0.	0.	0.	0.	0.	0.
36	38.	36.	31.	4.	0.	5.	0.	0.	6.	0.	0.	0.
37	115.	12.	0.	4.	9.	8.	0.	12.	6.	0.	0.	1.
38	0.	59.	0.	4.	6.	0.	0.	24.	6.	0.	0.	0.
39	77.	24.	0.	7.	6.	0.	0.	0.	6.	0.	0.	0.
40	0.	36.	0.	11.	6.	0.	0.	0.	6.	0.	0.	0.
41	38.	47.	31.	4.	0.	0.	0.	24.	0.	0.	0.	0.
42	0.	0.	31.	14.	0.	0.	0.	24.	6.	0.	0.	1.
43	192.	36.	0.	14.	6.	0.	0.	24.	0.	0.	0.	0.
44	0.	0.	31.	4.	16.	0.	0.	0.	6.	0.	0.	1.
45	77.	12.	31.	11.	9.	3.	0.	12.	0.	0.	0.	0.
46	77.	0.	0.	7.	9.	3.	0.	12.	6.	0.	4.	2.
47	115.	0.	0.	4.	3.	3.	0.	0.	6.	0.	7.	1.
48	0.	12.	31.	0.	6.	3.	0.	12.	0.	0.	7.	2.
49	0.	12.	0.	4.	6.	3.	0.	24.	12.	0.	7.	5.
50	38.	36.	0.	0.	6.	5.	0.	24.	12.	0.	7.	7.
51	0.	47.	62.	11.	13.	0.	0.	0.	18.	0.	4.	4.
52	38.	47.	31.	7.	19.	0.	0.	0.	0.	0.	4.	4.

Table 11c. (cont.)

53	38.	36.	0.	0.	22.	5.	0.	12.	0.	0.	11.	1.
54	0.	0.	0.	0.	3.	3.	0.	12.	12.	0.	11.	5.
55	0.	0.	92.	4.	19.	10.	0.	0.	0.	0.	11.	7.
56	77.	12.	31.	4.	9.	5.	0.	0.	6.	0.	11.	7.
57	0.	0.	31.	14.	22.	8.	0.	12.	6.	0.	7.	4.
58	0.	0.	92.	11.	16.	13.	0.	12.	6.	0.	19.	8.
59	77.	36.	0.	4.	19.	8.	0.	24.	12.	0.	7.	2.
60	38.	24.	62.	7.	16.	13.	0.	12.	12.	0.	11.	5.
61	77.	0.	0.	7.	32.	0.	0.	12.	0.	0.	15.	2.
62	0.	12.	31.	22.	9.	3.	0.	24.	18.	0.	7.	5.
63	77.	24.	62.	11.	32.	5.	0.	0.	24.	0.	4.	7.
64	0.	12.	92.	7.	22.	5.	0.	24.	6.	0.	4.	6.
65	38.	12.	92.	4.	16.	0.	0.	0.	6.	0.	11.	4.
66	0.	24.	31.	0.	16.	3.	0.	47.	6.	0.	22.	8.
67	0.	0.	185.	0.	9.	3.	0.	35.	12.	0.	19.	6.
68	38.	0.	62.	7.	13.	3.	0.	47.	0.	0.	15.	7.
69	0.	36.	31.	7.	3.	5.	0.	71.	12.	0.	19.	5.
70	0.	12.	31.	14.	16.	18.	0.	59.	6.	0.	19.	14.
71	0.	24.	0.	4.	6.	3.	0.	24.	12.	0.	19.	4.
72	77.	12.	0.	11.	3.	8.	0.	35.	12.	0.	15.	14.
73	38.	0.	0.	0.	6.	21.	0.	24.	12.	0.	26.	8.
74	0.	24.	31.	7.	9.	8.	0.	83.	0.	0.	11.	6.
75	77.	12.	62.	0.	16.	13.	0.	24.	12.	0.	22.	2.
76	38.	36.	31.	7.	19.	10.	0.	71.	6.	0.	19.	4.
77	0.	24.	31.	7.	13.	13.	0.	35.	18.	0.	26.	2.
78	77.	12.	0.	0.	16.	21.	0.	83.	18.	0.	26.	7.
79	0.	24.	31.	4.	9.	5.	0.	95.	30.	0.	41.	6.
80	38.	12.	123.	11.	9.	26.	0.	47.	6.	50.	26.	6.
81	0.	12.	62.	4.	13.	18.	0.	130.	36.	50.	34.	9.
82	38.	36.	92.	11.	6.	29.	0.	83.	24.	50.	30.	2.
83	0.	12.	0.	4.	13.	37.	48.	142.	12.	0.	45.	2.
84	0.	24.	31.	18.	13.	13.	96.	225.	12.	75.	34.	7.
85	38.	12.	31.	4.	16.	18.	96.	142.	53.	75.	45.	12.
86	0.	12.	31.	7.	6.	29.	0.	189.	30.	100.	60.	13.
87	0.	12.	62.	7.	16.	47.	48.	130.	18.	175.	56.	15.
88	38.	24.	92.	7.	3.	63.	144.	213.	24.	75.	71.	12.
89	38.	12.	62.	11.	25.	50.	96.	213.	65.	150.	71.	16.
90	0.	0.	0.	4.	6.	63.	48.	236.	36.	25.	79.	25.
91	0.	36.	31.	7.	19.	86.	144.	295.	77.	25.	97.	19.
92	0.	24.	31.	11.	9.	76.	144.	319.	101.	50.	101.	24.
93	0.	24.	31.	4.	13.	107.	288.	213.	83.	25.	97.	51.
94	38.	0.	62.	11.	6.	131.	288.	355.	95.	125.	79.	31.
95	0.	0.	0.	18.	16.	118.	96.	284.	101.	25.	191.	44.
96	38.	12.	62.	14.	25.	154.	335.	355.	172.	0.	135.	40.
97	0.	24.	31.	18.	25.	136.	383.	177.	136.	25.	116.	39.
98	0.	24.	62.	7.	32.	136.	240.	319.	89.	75.	120.	46.
99	0.	12.	0.	11.	41.	133.	288.	307.	119.	50.	67.	40.
100	77.	36.	0.	14.	35.	126.	240.	165.	142.	75.	112.	31.
101	0.	36.	62.	22.	54.	131.	240.	189.	89.	100.	112.	39.
102	38.	12.	62.	7.	60.	139.	96.	118.	107.	50.	67.	32.
103	38.	0.	0.	18.	60.	191.	96.	189.	65.	50.	75.	35.
104	38.	12.	62.	14.	63.	115.	192.	165.	130.	50.	52.	28.
105	0.	0.	31.	25.	85.	139.	96.	177.	77.	0.	52.	37.
106	0.	0.	62.	11.	41.	112.	0.	106.	95.	75.	90.	26.
107	77.	24.	31.	4.	66.	131.	48.	165.	65.	0.	60.	16.

Table 11c (cont.)

108	38.	24.	62.	7.	79.	118.	96.	24.	77.	50.	49.	12.
109	0.	0.	62.	22.	79.	105.	0.	118.	59.	0.	41.	19.
110	0.	0.	62.	18.	54.	89.	0.	59.	36.	25.	30.	8.
111	0.	0.	92.	32.	44.	84.	0.	95.	59.	0.	37.	15.
112	0.	0.	62.	11.	79.	76.	48.	71.	47.	25.	26.	6.
113	38.	0.	31.	7.	44.	65.	0.	35.	24.	0.	41.	5.
114	0.	0.	0.	7.	63.	68.	0.	24.	65.	25.	22.	6.
115	0.	0.	62.	11.	51.	68.	0.	12.	12.	0.	22.	2.
116	0.	0.	62.	7.	66.	52.	48.	24.	18.	0.	34.	7.
117	0.	0.	0.	4.	69.	58.	0.	35.	42.	0.	30.	2.
118	0.	0.	0.	11.	73.	37.	0.	12.	18.	25.	22.	2.
119	77.	12.	0.	14.	51.	52.	48.	35.	36.	0.	19.	7.
120	0.	0.	62.	7.	44.	50.	0.	24.	6.	0.	11.	7.
121	0.	12.	31.	4.	44.	24.	0.	0.	0.	0.	15.	6.
122	0.	0.	31.	0.	32.	39.	0.	12.	6.	0.	22.	5.
123	0.	0.	0.	7.	35.	24.	0.	0.	6.	25.	26.	1.
124	0.	0.	0.	4.	19.	16.	48.	35.	6.	0.	19.	1.
125	0.	0.	0.	7.	41.	29.	0.	0.	0.	0.	11.	4.
126	0.	0.	62.	4.	38.	29.	0.	0.	30.	0.	7.	2.
127	0.	12.	31.	14.	16.	8.	0.	0.	0.	0.	7.	4.
128	0.	0.	0.	0.	19.	8.	0.	0.	6.	0.	19.	1.
129	0.	0.	0.	0.	32.	26.	0.	12.	0.	0.	0.	1.
130	0.	0.	0.	4.	19.	16.	0.	0.	0.	0.	15.	0.
131	0.	0.	0.	0.	16.	3.	0.	0.	6.	0.	4.	0.
132	0.	0.	0.	0.	22.	3.	0.	0.	6.	0.	0.	0.
133	0.	0.	0.	0.	9.	3.	0.	0.	0.	0.	0.	0.
134	0.	0.	0.	0.	9.	3.	0.	0.	6.	0.	4.	0.
135	0.	0.	31.	0.	16.	5.	0.	0.	0.	0.	0.	1.
136	0.	0.	0.	0.	0.	3.	0.	12.	0.	0.	0.	0.
137	0.	0.	0.	0.	9.	3.	0.	0.	0.	0.	0.	0.
138	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
139	0.	0.	0.	0.	9.	3.	0.	0.	0.	0.	4.	2.
140	0.	0.	0.	0.	13.	3.	0.	12.	0.	0.	4.	0.
141	0.	0.	0.	0.	3.	0.	0.	0.	0.	0.	4.	0.
142	0.	0.	0.	0.	9.	0.	0.	0.	0.	0.	0.	0.
143	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
144	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	4.	0.
145	0.	0.	0.	0.	6.	3.	0.	0.	0.	0.	0.	0.
146	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
147	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
148	0.	0.	0.	0.	3.	0.	0.	0.	0.	0.	0.	0.
149	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	4.	0.
150	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
151	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
152	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
153	0.	0.	0.	0.	0.	3.	0.	0.	0.	0.	0.	0.
154	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
155	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
156	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
157	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
158	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
159	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
160	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
161	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
162	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

Table 11c (cont.)

163	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
164	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
165	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
166	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
167	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
168	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
169	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
170	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
171	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
172	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
173	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
174	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
175	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
176	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
177	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
178	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
179	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
180	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
181	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
182	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
183	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
184	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
185	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
186	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
187	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
188	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
189	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
190	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
191	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
192	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
193	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
194	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
195	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
196	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
197	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
198	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
199	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
All	2341.	1327.	3512.	817.	2573.	3973.	4073.	7364.	2982.	1797.	3210.	1008.

Table 11d. Estimated total commercial catch at length by Fishery, Gear, and calendar year for the Atlantic greater amberjack stock.

Sector and Mode are Commercial bottom longline												
CM	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
3	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
8	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
9	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
10	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
12	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
13	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
14	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
15	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
16	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
17	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
18	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
19	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
20	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
21	0.	0.	0.	4.	0.	0.	0.	0.	0.	0.	0.	0.
22	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
23	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
24	0.	0.	0.	13.	0.	0.	0.	0.	0.	0.	0.	0.
25	0.	0.	0.	4.	0.	0.	0.	0.	0.	0.	0.	0.
26	0.	0.	0.	0.	2.	0.	0.	0.	0.	0.	0.	0.
27	0.	0.	0.	0.	2.	0.	0.	0.	0.	0.	0.	0.
28	0.	0.	0.	0.	4.	0.	0.	0.	0.	0.	0.	0.
29	0.	0.	0.	0.	4.	0.	0.	0.	0.	0.	0.	0.
30	0.	0.	3.	0.	1.	0.	0.	0.	0.	0.	0.	0.
31	0.	0.	0.	8.	1.	0.	0.	0.	0.	0.	0.	0.
32	0.	0.	0.	8.	2.	0.	0.	0.	0.	2.	0.	0.
33	8.	0.	6.	4.	0.	0.	0.	0.	0.	0.	0.	0.
34	8.	3.	9.	4.	1.	0.	0.	0.	0.	2.	6.	0.
35	0.	0.	0.	4.	1.	0.	0.	0.	0.	2.	0.	0.
36	8.	9.	3.	4.	0.	0.	0.	0.	2.	0.	0.	0.
37	24.	3.	0.	4.	2.	0.	0.	1.	2.	2.	0.	2.
38	0.	16.	0.	4.	2.	0.	0.	1.	2.	2.	0.	0.
39	16.	6.	0.	8.	2.	0.	0.	0.	2.	0.	0.	0.
40	0.	9.	0.	13.	2.	0.	0.	0.	2.	0.	0.	0.
41	8.	13.	3.	4.	0.	0.	0.	1.	0.	0.	0.	0.
42	0.	0.	3.	17.	0.	0.	0.	1.	2.	0.	0.	2.
43	41.	9.	0.	17.	2.	0.	0.	1.	0.	0.	0.	0.
44	0.	0.	3.	4.	4.	0.	0.	0.	2.	0.	0.	2.
45	16.	3.	3.	13.	2.	0.	0.	1.	0.	2.	0.	0.
46	16.	0.	0.	8.	2.	0.	0.	1.	2.	0.	3.	3.
47	24.	0.	0.	4.	1.	0.	0.	0.	2.	2.	6.	2.
48	0.	3.	3.	0.	2.	0.	0.	1.	0.	0.	6.	3.
49	0.	3.	0.	4.	2.	0.	0.	1.	4.	0.	6.	7.
50	8.	9.	0.	0.	2.	0.	0.	1.	4.	7.	6.	10.
51	0.	13.	6.	13.	3.	0.	0.	0.	6.	2.	3.	5.
52	8.	13.	3.	8.	5.	0.	0.	0.	0.	0.	3.	5.

Table 11d. (cont.)

53	8.	9.	0.	0.	6.	0.	0.	1.	0.	3.	8.	2.
54	0.	0.	0.	0.	1.	0.	0.	1.	4.	0.	6.	7.
55	0.	0.	9.	4.	5.	0.	0.	0.	0.	0.	8.	10.
56	16.	3.	3.	4.	2.	0.	0.	0.	2.	2.	8.	10.
57	0.	0.	3.	17.	6.	0.	0.	1.	2.	3.	6.	5.
58	0.	0.	9.	13.	4.	24.	0.	1.	2.	3.	14.	12.
59	16.	9.	0.	4.	5.	0.	0.	1.	4.	9.	6.	3.
60	8.	6.	6.	8.	4.	0.	0.	1.	4.	3.	8.	7.
61	16.	0.	0.	8.	8.	0.	0.	1.	0.	7.	11.	3.
62	0.	3.	3.	25.	2.	0.	0.	1.	6.	0.	6.	7.
63	16.	6.	6.	13.	8.	12.	9.	0.	8.	2.	3.	10.
64	0.	3.	9.	8.	6.	0.	0.	1.	2.	2.	3.	8.
65	8.	3.	9.	4.	4.	0.	0.	0.	2.	5.	8.	5.
66	0.	6.	3.	0.	4.	0.	0.	3.	2.	7.	17.	12.
67	0.	0.	17.	0.	2.	0.	0.	2.	4.	2.	14.	8.
68	8.	0.	6.	8.	3.	0.	0.	3.	0.	0.	11.	10.
69	0.	9.	3.	8.	1.	0.	0.	4.	4.	3.	14.	7.
70	0.	3.	3.	17.	4.	0.	0.	4.	2.	9.	11.	20.
71	0.	6.	0.	4.	2.	0.	0.	1.	4.	9.	14.	5.
72	16.	3.	0.	13.	1.	0.	0.	2.	4.	14.	8.	20.
73	8.	0.	0.	0.	2.	0.	9.	1.	4.	7.	19.	12.
74	0.	6.	3.	8.	2.	0.	0.	5.	0.	2.	8.	8.
75	16.	3.	6.	0.	4.	24.	0.	1.	4.	0.	11.	3.
76	8.	9.	3.	8.	5.	12.	0.	4.	2.	16.	14.	5.
77	0.	6.	3.	8.	3.	12.	0.	2.	4.	3.	19.	3.
78	16.	3.	0.	0.	4.	12.	0.	5.	6.	7.	19.	10.
79	0.	6.	3.	4.	2.	12.	0.	6.	10.	9.	28.	8.
80	8.	3.	12.	13.	2.	12.	9.	2.	2.	3.	19.	8.
81	0.	3.	6.	4.	2.	0.	9.	7.	10.	10.	25.	13.
82	8.	9.	9.	13.	2.	36.	19.	5.	6.	5.	22.	3.
83	0.	3.	0.	4.	3.	0.	0.	9.	4.	14.	33.	3.
84	0.	6.	3.	21.	3.	0.	9.	13.	4.	16.	25.	10.
85	8.	3.	3.	4.	4.	0.	9.	9.	19.	9.	30.	17.
86	0.	3.	3.	8.	1.	0.	28.	12.	10.	16.	44.	18.
87	0.	3.	6.	8.	4.	24.	28.	8.	6.	16.	41.	22.
88	8.	6.	9.	8.	1.	12.	9.	12.	8.	28.	52.	17.
89	8.	3.	6.	13.	6.	0.	9.	12.	23.	28.	52.	23.
90	0.	0.	0.	4.	2.	12.	19.	14.	12.	49.	58.	35.
91	0.	9.	3.	8.	5.	0.	9.	17.	25.	42.	69.	27.
92	0.	6.	3.	13.	2.	0.	28.	19.	31.	49.	72.	33.
93	0.	6.	3.	4.	3.	24.	28.	13.	29.	45.	69.	72.
94	8.	0.	6.	13.	2.	24.	9.	20.	31.	38.	55.	43.
95	0.	0.	0.	21.	4.	24.	37.	17.	31.	36.	135.	62.
96	8.	3.	6.	17.	6.	36.	47.	21.	50.	42.	96.	57.
97	0.	6.	3.	21.	6.	60.	37.	10.	37.	54.	85.	55.
98	0.	6.	6.	8.	8.	24.	19.	19.	27.	36.	80.	65.
99	0.	3.	0.	13.	10.	36.	28.	12.	41.	35.	47.	57.
100	16.	9.	0.	17.	9.	71.	75.	10.	43.	33.	80.	43.
101	0.	9.	6.	25.	14.	48.	47.	9.	29.	36.	83.	55.
102	8.	3.	6.	8.	15.	95.	37.	4.	31.	16.	50.	45.
103	8.	0.	0.	21.	15.	71.	37.	9.	23.	23.	55.	50.
104	8.	3.	6.	17.	16.	36.	37.	10.	46.	16.	39.	40.
105	0.	0.	3.	29.	22.	107.	56.	9.	23.	17.	39.	52.
106	0.	0.	6.	13.	10.	24.	9.	5.	33.	7.	66.	37.
107	16.	6.	3.	4.	17.	12.	56.	9.	17.	12.	44.	23.

Table 11d. (cont.).

108	8.	6.	6.	8.	20.	0.	19.	1.	25.	7.	36.	17.
109	0.	0.	6.	25.	20.	36.	0.	7.	21.	21.	28.	27.
110	0.	0.	6.	21.	14.	12.	0.	4.	12.	16.	19.	12.
111	0.	0.	9.	38.	11.	0.	9.	6.	19.	10.	28.	22.
112	0.	0.	6.	13.	20.	0.	0.	4.	14.	2.	19.	8.
113	8.	0.	3.	8.	11.	12.	9.	2.	8.	5.	30.	7.
114	0.	0.	0.	8.	16.	0.	9.	1.	21.	5.	17.	8.
115	0.	0.	6.	13.	13.	12.	9.	1.	2.	17.	17.	3.
116	0.	0.	6.	8.	17.	0.	0.	1.	6.	5.	25.	10.
117	0.	0.	0.	4.	18.	0.	0.	2.	14.	12.	22.	3.
118	0.	0.	0.	13.	18.	0.	0.	1.	4.	2.	17.	3.
119	16.	3.	0.	17.	13.	0.	0.	2.	12.	2.	14.	10.
120	0.	0.	6.	8.	11.	0.	0.	1.	2.	2.	8.	10.
121	0.	3.	3.	4.	11.	0.	0.	0.	0.	0.	11.	8.
122	0.	0.	3.	0.	8.	0.	9.	1.	2.	0.	17.	7.
123	0.	0.	0.	8.	9.	0.	0.	0.	2.	0.	19.	2.
124	0.	0.	0.	4.	5.	0.	0.	2.	2.	5.	14.	2.
125	0.	0.	0.	8.	10.	0.	0.	0.	0.	2.	8.	5.
126	0.	0.	6.	4.	10.	12.	0.	0.	8.	0.	6.	3.
127	0.	3.	3.	17.	4.	0.	0.	0.	0.	2.	6.	5.
128	0.	0.	0.	0.	5.	0.	0.	0.	2.	0.	14.	2.
129	0.	0.	0.	0.	8.	0.	0.	1.	0.	0.	0.	2.
130	0.	0.	0.	4.	5.	0.	0.	0.	0.	3.	11.	0.
131	0.	0.	0.	0.	4.	0.	0.	0.	2.	0.	3.	0.
132	0.	0.	0.	0.	6.	0.	0.	0.	2.	0.	0.	0.
133	0.	0.	0.	0.	2.	0.	0.	0.	0.	0.	0.	0.
134	0.	0.	0.	0.	2.	0.	0.	0.	2.	0.	3.	0.
135	0.	0.	3.	0.	4.	0.	0.	0.	0.	0.	0.	2.
136	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
137	0.	0.	0.	0.	2.	0.	0.	0.	0.	0.	0.	0.
138	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
139	0.	0.	0.	0.	2.	0.	0.	0.	0.	0.	0.	0.
140	0.	0.	0.	0.	3.	0.	0.	0.	0.	0.	3.	3.
141	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	3.	0.
142	0.	0.	0.	0.	2.	0.	0.	0.	0.	0.	3.	0.
143	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
144	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	3.	0.
145	0.	0.	0.	0.	2.	0.	0.	0.	0.	0.	0.	0.
146	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
147	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
148	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	2.
149	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
150	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	3.	0.
151	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
152	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
153	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
154	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
155	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
156	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
157	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
158	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
159	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
160	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
161	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
162	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

Table 11d. (cont.).

163	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
164	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
165	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
166	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
167	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
168	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
169	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
170	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
171	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
172	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
173	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
174	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
175	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
176	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
177	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
178	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
179	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
180	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
181	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
182	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
183	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
184	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
185	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
186	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
187	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
188	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
189	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
190	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
191	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
192	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
193	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
194	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
195	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
196	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
197	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
198	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
199	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
All	495.	351.	328.	956.	652.	976.	833.	418.	958.	995.	2305.	1427.

Table 12a: Estimated total recreational catch at length by Fishery, Gear, and calendar year for the Atlantic greater amberjack stock.

Sector and Mode are CM	MRFSS Shore FISHERY											
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
3	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
8	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
9	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
10	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
12	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
13	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
14	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
15	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
16	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
17	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
18	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
19	0.	0.	0.	0.	25.	0.	0.	0.	0.	0.	0.	0.
20	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
21	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
22	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
23	0.	0.	0.	0.	76.	0.	0.	0.	0.	0.	0.	0.
24	0.	0.	0.	0.	51.	0.	0.	0.	0.	0.	0.	0.
25	0.	0.	0.	0.	51.	0.	0.	0.	0.	0.	0.	0.
26	0.	0.	0.	0.	25.	0.	0.	0.	0.	0.	0.	0.
27	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
28	0.	0.	0.	54.	25.	0.	0.	0.	0.	0.	0.	0.
29	0.	0.	7.	54.	0.	0.	25.	0.	0.	0.	0.	0.
30	0.	0.	0.	0.	0.	0.	49.	0.	0.	0.	0.	0.
31	0.	0.	7.	54.	0.	0.	0.	0.	0.	0.	0.	0.
32	0.	0.	0.	0.	0.	0.	25.	0.	0.	0.	0.	0.
33	0.	0.	0.	54.	0.	0.	0.	0.	0.	0.	0.	0.
34	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
35	0.	0.	0.	0.	0.	0.	25.	0.	0.	0.	0.	0.
36	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
37	17.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
38	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
39	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
40	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
41	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
42	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
43	0.	0.	0.	54.	0.	0.	0.	0.	0.	0.	0.	0.
44	17.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
45	17.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
46	0.	0.	0.	0.	0.	0.	25.	0.	0.	0.	0.	0.
47	17.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
48	0.	0.	0.	0.	25.	11.	0.	0.	0.	0.	0.	0.
49	0.	0.	0.	54.	0.	11.	0.	0.	0.	0.	0.	0.
50	17.	0.	0.	54.	0.	11.	0.	0.	0.	0.	0.	0.
51	17.	0.	0.	54.	0.	0.	0.	0.	0.	0.	0.	0.

Table 12a. (cont.)

52	0.	0.	0.	54.	25.	11.	0.	0.	0.	0.	0.	0.
53	0.	0.	0.	54.	0.	0.	0.	0.	0.	0.	0.	0.
54	17.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
55	0.	0.	0.	0.	0.	11.	0.	0.	0.	0.	0.	0.
56	17.	0.	0.	0.	0.	11.	0.	0.	0.	0.	0.	0.
57	0.	0.	0.	0.	25.	11.	0.	0.	0.	0.	0.	0.
58	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
59	0.	0.	0.	108.	0.	0.	25.	0.	0.	0.	0.	0.
60	34.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
61	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
62	0.	0.	0.	54.	0.	0.	0.	0.	0.	0.	0.	0.
63	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
64	0.	0.	0.	54.	0.	0.	25.	0.	0.	0.	0.	0.
65	17.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
66	0.	0.	0.	54.	0.	0.	0.	0.	0.	0.	0.	0.
67	17.	0.	0.	0.	25.	11.	25.	0.	0.	0.	0.	0.
68	0.	0.	0.	54.	25.	22.	25.	0.	0.	0.	0.	0.
69	0.	0.	0.	0.	0.	0.	49.	0.	0.	0.	0.	0.
70	17.	0.	0.	54.	25.	0.	0.	0.	0.	0.	0.	0.
71	17.	0.	7.	0.	76.	11.	49.	0.	0.	0.	0.	0.
72	34.	0.	0.	0.	0.	0.	49.	0.	0.	0.	0.	0.
73	0.	0.	0.	0.	101.	0.	0.	0.	0.	0.	0.	0.
74	17.	0.	7.	0.	101.	11.	25.	0.	0.	0.	0.	0.
75	17.	0.	0.	0.	76.	33.	0.	0.	0.	0.	0.	0.
76	0.	0.	7.	108.	51.	11.	25.	0.	0.	0.	0.	0.
77	17.	0.	0.	0.	76.	0.	25.	0.	0.	0.	0.	0.
78	0.	0.	0.	0.	25.	33.	25.	0.	0.	0.	0.	0.
79	17.	0.	7.	0.	101.	11.	25.	0.	0.	0.	0.	0.
80	0.	0.	0.	0.	76.	11.	25.	0.	0.	0.	0.	0.
81	0.	0.	0.	0.	177.	22.	49.	0.	0.	0.	0.	0.
82	0.	0.	0.	0.	127.	33.	49.	0.	0.	0.	0.	0.
83	34.	0.	0.	54.	51.	22.	148.	0.	0.	0.	0.	0.
84	34.	0.	0.	108.	203.	11.	148.	0.	0.	0.	0.	0.
85	34.	0.	0.	163.	51.	22.	25.	0.	0.	0.	0.	0.
86	0.	0.	0.	163.	25.	145.	74.	0.	0.	0.	0.	0.
87	0.	0.	0.	54.	25.	22.	49.	0.	0.	0.	0.	0.
88	17.	0.	0.	54.	51.	45.	123.	0.	0.	0.	0.	0.
89	34.	0.	7.	108.	25.	89.	148.	0.	0.	0.	0.	0.
90	50.	0.	0.	108.	25.	45.	99.	0.	0.	0.	0.	0.
91	34.	0.	13.	54.	0.	0.	74.	0.	0.	0.	0.	0.
92	17.	0.	7.	163.	0.	33.	123.	0.	0.	0.	0.	0.
93	17.	0.	13.	108.	0.	11.	123.	0.	0.	0.	0.	0.
94	34.	0.	26.	108.	25.	78.	99.	0.	0.	0.	0.	0.
95	50.	0.	19.	163.	25.	33.	173.	0.	0.	0.	0.	0.
96	0.	0.	0.	0.	101.	33.	99.	0.	0.	0.	0.	0.
97	34.	0.	19.	217.	25.	11.	99.	0.	0.	0.	0.	0.
98	0.	0.	13.	54.	25.	11.	123.	0.	0.	0.	0.	0.
99	0.	0.	91.	325.	127.	67.	271.	0.	0.	0.	0.	0.
100	0.	0.	19.	54.	51.	56.	345.	0.	0.	0.	0.	0.
101	84.	0.	39.	217.	0.	45.	222.	0.	0.	0.	0.	0.
102	50.	0.	7.	108.	0.	45.	99.	0.	0.	0.	0.	0.
103	17.	0.	26.	108.	51.	22.	74.	0.	0.	0.	0.	0.
104	34.	0.	58.	379.	101.	45.	74.	0.	0.	0.	0.	0.
105	34.	0.	52.	379.	76.	56.	74.	0.	0.	0.	0.	0.
106	34.	0.	39.	163.	25.	22.	25.	0.	0.	0.	0.	0.

Table 12a. (cont.)

107	101.	0.	26.	54.	25.	11.	74.	0.	0.	0.	0.	0.
108	34.	0.	19.	108.	25.	0.	49.	0.	0.	0.	0.	0.
109	17.	0.	7.	108.	101.	11.	25.	0.	0.	0.	0.	0.
110	67.	0.	13.	217.	51.	22.	0.	0.	0.	0.	0.	0.
111	67.	0.	19.	54.	51.	22.	99.	0.	0.	0.	0.	0.
112	34.	0.	19.	163.	203.	33.	25.	0.	0.	0.	0.	0.
113	0.	0.	13.	108.	51.	0.	25.	0.	0.	0.	0.	0.
114	34.	0.	19.	108.	0.	11.	0.	0.	0.	0.	0.	0.
115	34.	0.	19.	163.	101.	11.	25.	0.	0.	0.	0.	0.
116	34.	0.	7.	0.	51.	0.	0.	0.	0.	0.	0.	0.
117	50.	0.	13.	0.	51.	0.	49.	0.	0.	0.	0.	0.
118	17.	0.	0.	0.	25.	0.	25.	0.	0.	0.	0.	0.
119	50.	0.	0.	54.	127.	11.	25.	0.	0.	0.	0.	0.
120	50.	0.	7.	54.	0.	11.	0.	0.	0.	0.	0.	0.
121	34.	0.	33.	0.	25.	11.	0.	0.	0.	0.	0.	0.
122	134.	0.	0.	0.	51.	0.	25.	0.	0.	0.	0.	0.
123	34.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
124	50.	0.	19.	0.	0.	0.	0.	0.	0.	0.	0.	0.
125	17.	0.	7.	0.	25.	0.	0.	0.	0.	0.	0.	0.
126	0.	0.	0.	54.	0.	22.	0.	0.	0.	0.	0.	0.
127	50.	0.	7.	54.	25.	0.	0.	0.	0.	0.	0.	0.
128	0.	0.	7.	0.	0.	0.	0.	0.	0.	0.	0.	0.
129	0.	0.	7.	0.	0.	0.	49.	0.	0.	0.	0.	0.
130	17.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
131	0.	0.	0.	0.	0.	11.	0.	0.	0.	0.	0.	0.
132	17.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
133	17.	0.	0.	0.	51.	0.	25.	0.	0.	0.	0.	0.
134	0.	0.	13.	0.	0.	0.	0.	0.	0.	0.	0.	0.
135	17.	0.	0.	0.	0.	0.	25.	0.	0.	0.	0.	0.
136	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
137	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
138	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
139	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
140	34.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
141	0.	0.	7.	0.	0.	0.	0.	0.	0.	0.	0.	0.
142	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
143	0.	0.	7.	0.	0.	0.	0.	0.	0.	0.	0.	0.
144	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
145	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
146	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
147	0.	0.	7.	0.	0.	0.	0.	0.	0.	0.	0.	0.
148	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
149	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
150	0.	0.	7.	0.	0.	0.	0.	0.	0.	0.	0.	0.
151	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
152	0.	0.	7.	0.	0.	0.	0.	0.	0.	0.	0.	0.
153	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
154	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
155	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
156	0.	0.	7.	0.	0.	0.	0.	0.	0.	0.	0.	0.
157	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
158	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
159	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
160	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
161	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

Table 12a. (cont.)

162	17.	0.	7.	0.	0.	0.	0.	0.	0.	0.	0.	0.
163	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
164	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
165	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
166	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
167	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
168	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
169	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
170	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
171	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
172	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
173	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
174	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
175	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
176	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
177	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
178	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
179	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
180	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
181	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
182	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
183	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
184	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
185	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
186	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
187	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
188	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
189	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
190	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
191	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
192	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
193	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
194	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
195	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
196	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
197	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
198	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
199	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
All	1997.	0.	871.	5743.	3521.	1448.	4093.	0.	0.	0.	0.	0.

Table 12b. Estimated total recreational catch at length by Fishery, Gear, and calendar year for the Atlantic greater amberjack stock.

Sector and Mode are	MRFSS Charterboat fishery											
CM	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
3	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
8	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
9	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
10	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
12	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
13	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
14	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
15	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
16	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
17	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
18	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
19	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
20	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
21	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
22	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
23	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
24	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
25	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
26	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
27	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
28	0.	0.	0.	182.	0.	0.	0.	0.	0.	0.	0.	0.
29	0.	0.	0.	182.	0.	0.	0.	0.	0.	0.	0.	0.
30	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
31	0.	0.	285.	182.	0.	0.	0.	0.	0.	0.	0.	0.
32	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
33	0.	0.	0.	182.	0.	0.	0.	0.	0.	0.	0.	0.
34	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
35	0.	0.	0.	0.	0.	0.	152.	0.	0.	0.	0.	0.
36	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
37	0.	0.	0.	0.	0.	0.	0.	0.	0.	189.	0.	0.
38	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
39	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
40	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
41	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	139.
42	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	139.
43	0.	0.	0.	182.	0.	0.	0.	0.	0.	0.	0.	0.
44	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
45	651.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
46	0.	396.	0.	0.	0.	0.	152.	428.	0.	0.	0.	0.
47	651.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
48	0.	0.	0.	0.	266.	0.	0.	0.	0.	0.	0.	0.
49	0.	0.	0.	182.	0.	0.	0.	0.	0.	0.	0.	0.
50	651.	0.	0.	182.	0.	0.	0.	0.	0.	0.	0.	0.
51	651.	0.	0.	182.	0.	0.	0.	0.	0.	0.	0.	0.

Table 12b. (cont.).

52	0.	0.	0.	182.	266.	0.	0.	0.	0.	189.	0.	0.
53	0.	396.	0.	182.	0.	0.	0.	0.	0.	189.	0.	139.
54	651.	0.	0.	0.	0.	0.	0.	0.	0.	189.	0.	0.
55	0.	0.	0.	0.	0.	171.	0.	0.	0.	189.	0.	0.
56	651.	0.	0.	0.	0.	171.	0.	0.	0.	189.	0.	0.
57	0.	0.	0.	0.	266.	171.	0.	0.	0.	189.	0.	0.
58	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
59	0.	0.	0.	364.	0.	0.	0.	0.	0.	189.	0.	0.
60	651.	396.	0.	0.	0.	0.	0.	0.	0.	0.	321.	0.
61	0.	396.	0.	0.	0.	0.	0.	0.	0.	0.	0.	139.
62	0.	396.	0.	182.	0.	0.	0.	428.	0.	0.	0.	0.
63	0.	0.	0.	0.	0.	0.	0.	0.	272.	0.	321.	0.
64	0.	0.	0.	182.	0.	0.	0.	0.	0.	0.	321.	0.
65	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
66	0.	0.	0.	182.	0.	0.	0.	428.	0.	0.	0.	0.
67	651.	396.	0.	0.	0.	0.	152.	0.	0.	0.	0.	0.
68	0.	0.	0.	182.	0.	342.	152.	428.	0.	189.	321.	0.
69	0.	0.	0.	0.	0.	0.	304.	428.	0.	0.	0.	139.
70	0.	0.	0.	182.	266.	0.	0.	0.	272.	0.	321.	139.
71	651.	0.	0.	0.	797.	171.	304.	0.	272.	0.	0.	0.
72	1302.	0.	0.	0.	0.	0.	304.	0.	544.	0.	0.	0.
73	0.	396.	0.	0.	797.	0.	0.	428.	0.	377.	0.	139.
74	651.	0.	0.	0.	1062.	171.	152.	0.	0.	0.	321.	278.
75	651.	0.	0.	0.	797.	342.	0.	428.	0.	189.	0.	139.
76	0.	0.	0.	364.	531.	0.	152.	2141.	0.	189.	0.	278.
77	651.	396.	0.	0.	531.	0.	152.	428.	0.	0.	321.	278.
78	0.	791.	0.	0.	266.	342.	152.	1285.	0.	377.	0.	417.
79	651.	0.	285.	0.	1062.	171.	152.	2141.	0.	189.	0.	417.
80	0.	0.	0.	0.	797.	171.	0.	2997.	0.	0.	0.	139.
81	0.	791.	0.	0.	1593.	171.	304.	428.	544.	0.	0.	0.
82	0.	0.	0.	0.	1328.	512.	152.	1713.	272.	189.	0.	139.
83	1302.	0.	0.	182.	531.	342.	912.	2569.	0.	189.	0.	278.
84	1302.	0.	0.	364.	2124.	171.	912.	1713.	272.	566.	641.	278.
85	651.	396.	2565.	545.	531.	342.	152.	2569.	815.	754.	0.	278.
86	0.	1187.	0.	364.	266.	1878.	456.	1285.	272.	566.	0.	0.
87	0.	396.	0.	182.	266.	342.	304.	2141.	0.	189.	0.	0.
88	651.	396.	0.	182.	531.	683.	608.	1713.	272.	377.	641.	0.
89	1302.	0.	285.	364.	0.	1195.	912.	3425.	1087.	189.	962.	0.
90	1953.	396.	0.	364.	266.	683.	608.	1285.	1087.	566.	1282.	696.
91	1302.	0.	285.	182.	0.	0.	456.	1713.	544.	566.	641.	139.
92	651.	0.	0.	545.	0.	512.	760.	1713.	544.	566.	1282.	0.
93	651.	396.	285.	364.	0.	171.	760.	428.	815.	943.	641.	139.
94	1302.	791.	1140.	364.	266.	1025.	456.	2569.	1087.	189.	1603.	835.
95	0.	396.	855.	545.	266.	512.	912.	2141.	544.	566.	321.	278.
96	0.	0.	0.	0.	531.	512.	608.	1713.	1087.	1509.	0.	556.
97	1302.	0.	285.	727.	266.	171.	608.	1285.	1087.	566.	1282.	1113.
98	0.	0.	570.	182.	266.	171.	608.	428.	272.	943.	321.	974.
99	0.	2374.	3990.	1091.	1328.	1025.	1368.	1713.	0.	754.	962.	278.
100	0.	791.	570.	182.	531.	854.	1825.	0.	815.	0.	1282.	0.
101	1953.	791.	1425.	727.	0.	683.	1368.	1285.	815.	377.	321.	556.
102	1953.	791.	285.	364.	0.	683.	456.	1285.	1087.	0.	321.	139.
103	651.	791.	1140.	364.	266.	342.	456.	428.	272.	189.	1603.	417.
104	0.	1187.	1995.	1273.	1062.	683.	456.	1285.	272.	566.	321.	139.
105	651.	791.	1710.	1273.	797.	854.	152.	856.	815.	377.	1603.	556.
106	651.	396.	1140.	545.	266.	342.	0.	1285.	815.	566.	321.	417.

Table 12b. (cont.).

107	3907.	791.	1140.	182.	266.	171.	456.	1285.	0.	566.	321.	417.
108	651.	396.	855.	364.	266.	0.	304.	1713.	544.	377.	962.	556.
109	651.	396.	285.	364.	1062.	0.	152.	0.	272.	189.	962.	139.
110	651.	396.	570.	727.	531.	342.	0.	0.	0.	0.	321.	0.
111	2604.	791.	570.	182.	531.	342.	608.	0.	272.	189.	321.	417.
112	1302.	396.	570.	545.	2124.	512.	0.	1285.	544.	0.	0.	278.
113	0.	396.	570.	364.	531.	0.	0.	1285.	0.	377.	0.	139.
114	651.	791.	285.	364.	0.	0.	0.	0.	272.	566.	0.	0.
115	651.	0.	855.	545.	1062.	171.	0.	428.	0.	377.	0.	139.
116	1302.	396.	285.	0.	531.	0.	0.	0.	0.	189.	0.	139.
117	1302.	396.	285.	0.	531.	0.	0.	428.	0.	189.	0.	139.
118	0.	791.	0.	0.	266.	0.	0.	0.	0.	0.	0.	0.
119	1953.	0.	0.	182.	1328.	171.	0.	0.	544.	566.	0.	139.
120	651.	791.	285.	182.	0.	0.	0.	428.	272.	0.	321.	0.
121	1302.	0.	570.	0.	266.	171.	0.	0.	0.	0.	0.	0.
122	5209.	0.	0.	0.	531.	0.	152.	0.	0.	377.	0.	278.
123	1302.	0.	0.	0.	0.	0.	0.	0.	272.	189.	321.	139.
124	1953.	791.	570.	0.	0.	0.	0.	0.	0.	189.	321.	0.
125	0.	0.	285.	0.	266.	0.	0.	0.	0.	189.	0.	0.
126	0.	0.	0.	182.	0.	342.	0.	0.	0.	189.	0.	0.
127	1302.	0.	0.	182.	266.	0.	0.	0.	0.	0.	0.	0.
128	0.	0.	285.	0.	0.	0.	0.	0.	0.	0.	0.	139.
129	0.	0.	285.	0.	0.	0.	304.	0.	0.	0.	0.	0.
130	651.	0.	0.	0.	0.	0.	0.	0.	0.	189.	0.	0.
131	0.	0.	0.	0.	0.	171.	0.	0.	0.	0.	0.	0.
132	651.	791.	0.	0.	0.	0.	0.	0.	0.	189.	0.	0.
133	0.	396.	0.	0.	531.	0.	152.	0.	0.	0.	0.	0.
134	0.	0.	0.	0.	0.	0.	0.	0.	0.	189.	0.	0.
135	0.	0.	0.	0.	0.	0.	152.	0.	0.	0.	0.	0.
136	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
137	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
138	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
139	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
140	651.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
141	0.	0.	0.	0.	0.	0.	0.	0.	272.	0.	0.	0.
142	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
143	0.	0.	285.	0.	0.	0.	0.	0.	0.	0.	0.	139.
144	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	139.
145	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
146	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
147	0.	396.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
148	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
149	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
150	0.	0.	285.	0.	0.	0.	0.	0.	0.	0.	0.	0.
151	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
152	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
153	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
154	0.	0.	0.	0.	0.	0.	0.	0.	272.	0.	0.	0.
155	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
156	0.	0.	285.	0.	0.	0.	0.	0.	0.	0.	0.	0.
157	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
158	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
159	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
160	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
161	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

Table 12b. (cont.)

162	651.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
163	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
164	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
165	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
166	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
167	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
168	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
169	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
170	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
171	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
172	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
173	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
174	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
175	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
176	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
177	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
178	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
179	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
180	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
181	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
182	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
183	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
184	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
185	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
186	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
187	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
188	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
189	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
190	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
191	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
192	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
193	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
194	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
195	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
196	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
197	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
198	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
199	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
A11	57947.	26115.	28497.	19092.	31866.	19467.	21134.	57803.	20386.	20555.	22441.	14468.

Table 12c. Estimated total catch at length by Fishery, Gear, and calendar year for the Atlantic greater amberjack stock.

Sector and Mode are	MRFSS Private boat fishery											
CM	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
3	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
8	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
9	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
10	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
12	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
13	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
14	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
15	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
16	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
17	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
18	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
19	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
20	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
21	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
22	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
23	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
24	0.	0.	0.	0.	133.	0.	0.	0.	0.	0.	0.	0.
25	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
26	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
27	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
28	0.	0.	0.	327.	0.	0.	0.	0.	0.	0.	0.	0.
29	0.	0.	286.	327.	0.	0.	0.	0.	0.	0.	0.	0.
30	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
31	0.	0.	286.	327.	0.	0.	0.	142.	0.	0.	0.	0.
32	0.	0.	0.	0.	0.	0.	75.	0.	0.	0.	0.	0.
33	0.	0.	0.	327.	0.	0.	0.	0.	0.	0.	0.	0.
34	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
35	0.	0.	0.	0.	0.	0.	75.	0.	0.	0.	0.	0.
36	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
37	199.	0.	0.	0.	0.	0.	0.	0.	0.	295.	0.	0.
38	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
39	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
40	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
41	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
42	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	55.
43	0.	0.	0.	327.	0.	0.	0.	0.	0.	0.	0.	55.
44	199.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
45	199.	0.	0.	0.	0.	0.	0.	283.	0.	0.	0.	0.
46	0.	570.	0.	0.	0.	0.	75.	142.	0.	0.	0.	0.
47	199.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
48	0.	0.	0.	0.	133.	270.	0.	0.	0.	0.	0.	0.
49	0.	0.	0.	327.	0.	270.	0.	0.	0.	0.	0.	0.
50	199.	0.	0.	327.	0.	270.	0.	0.	0.	0.	0.	0.
51	199.	0.	0.	327.	0.	0.	0.	0.	0.	0.	0.	0.

Table 12c. (cont.)

52	0.	0.	0.	327.	133.	270.	0.	0.	0.	295.	0.	0.
53	0.	570.	0.	327.	0.	0.	0.	0.	0.	295.	0.	55.
54	199.	0.	0.	0.	0.	0.	0.	0.	0.	295.	0.	0.
55	0.	0.	0.	0.	0.	270.	0.	0.	0.	295.	0.	0.
56	199.	0.	0.	0.	0.	270.	0.	0.	0.	295.	0.	0.
57	0.	0.	0.	0.	133.	270.	0.	0.	0.	295.	0.	0.
58	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
59	0.	0.	0.	655.	0.	0.	75.	0.	0.	295.	0.	0.
60	399.	570.	0.	0.	0.	0.	0.	0.	0.	0.	51.	0.
61	0.	570.	0.	0.	0.	0.	0.	0.	0.	0.	0.	55.
62	0.	570.	0.	327.	0.	0.	0.	142.	0.	0.	0.	0.
63	0.	0.	0.	0.	0.	0.	0.	0.	96.	0.	51.	0.
64	0.	0.	0.	327.	0.	0.	75.	0.	0.	0.	51.	0.
65	199.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
66	0.	0.	0.	327.	0.	0.	0.	142.	0.	0.	0.	0.
67	199.	570.	0.	0.	133.	270.	75.	0.	0.	0.	0.	0.
68	0.	0.	0.	327.	133.	541.	75.	142.	0.	295.	51.	0.
69	0.	0.	0.	0.	0.	0.	150.	142.	0.	0.	0.	55.
70	199.	0.	0.	327.	133.	0.	0.	0.	96.	0.	51.	110.
71	199.	0.	286.	0.	399.	270.	150.	0.	96.	0.	0.	0.
72	399.	0.	0.	0.	0.	0.	150.	0.	191.	0.	0.	0.
73	0.	570.	0.	0.	533.	0.	0.	142.	0.	591.	0.	55.
74	199.	0.	286.	0.	533.	270.	75.	0.	0.	0.	51.	110.
75	199.	0.	0.	0.	399.	811.	0.	142.	0.	295.	0.	55.
76	0.	0.	286.	655.	266.	270.	75.	850.	0.	295.	0.	110.
77	199.	570.	0.	0.	399.	0.	75.	142.	0.	0.	51.	110.
78	0.	1140.	0.	0.	133.	811.	75.	425.	0.	591.	0.	165.
79	199.	0.	286.	0.	533.	270.	75.	850.	0.	295.	0.	165.
80	0.	0.	0.	0.	399.	270.	75.	991.	0.	0.	0.	55.
81	0.	1140.	0.	0.	932.	541.	150.	142.	191.	0.	0.	0.
82	0.	0.	0.	0.	666.	811.	150.	566.	96.	295.	0.	55.
83	399.	0.	0.	327.	266.	541.	451.	850.	0.	295.	0.	110.
84	399.	0.	0.	655.	1065.	270.	451.	566.	96.	886.	102.	110.
85	399.	570.	2863.	982.	266.	541.	75.	1133.	287.	1181.	0.	110.
86	0.	1711.	0.	655.	133.	3516.	226.	425.	96.	886.	0.	0.
87	0.	570.	0.	327.	133.	541.	150.	708.	0.	295.	0.	55.
88	199.	570.	0.	327.	266.	1082.	376.	566.	96.	591.	102.	0.
89	399.	0.	286.	655.	133.	2164.	451.	1275.	383.	295.	153.	0.
90	598.	570.	0.	655.	133.	1082.	301.	425.	383.	886.	204.	275.
91	399.	0.	573.	327.	0.	0.	226.	566.	191.	886.	102.	55.
92	199.	0.	286.	982.	0.	811.	376.	566.	191.	886.	204.	0.
93	199.	570.	573.	655.	0.	270.	376.	142.	287.	1477.	102.	55.
94	399.	1140.	1145.	655.	133.	1893.	301.	991.	383.	295.	254.	330.
95	598.	570.	859.	982.	133.	811.	526.	708.	191.	886.	51.	110.
96	0.	0.	0.	0.	533.	811.	301.	708.	383.	2363.	0.	220.
97	399.	0.	859.	1309.	133.	270.	301.	425.	383.	886.	204.	441.
98	0.	0.	573.	327.	133.	270.	376.	142.	96.	1477.	51.	385.
99	0.	3421.	4008.	1964.	666.	1623.	827.	566.	0.	1181.	153.	110.
100	0.	1140.	859.	327.	266.	1352.	1053.	0.	287.	0.	204.	0.
101	997.	1140.	1718.	1309.	0.	1082.	677.	425.	287.	591.	51.	275.
102	598.	1140.	286.	655.	0.	1082.	301.	425.	383.	0.	51.	55.
103	199.	1140.	1145.	655.	266.	541.	226.	142.	96.	295.	254.	165.
104	399.	1711.	2577.	2291.	533.	1082.	226.	425.	96.	886.	51.	55.
105	399.	1140.	2290.	2291.	399.	1352.	226.	283.	287.	591.	254.	220.
106	399.	570.	1718.	982.	133.	541.	75.	425.	287.	886.	51.	165.

Table 12c. (cont.)

107	1196.	1140.	1145.	327.	133.	270.	226.	425.	0.	886.	51.	165.
108	399.	570.	859.	655.	133.	0.	150.	566.	191.	591.	153.	220.
109	199.	570.	286.	655.	533.	270.	75.	0.	96.	295.	153.	55.
110	797.	570.	573.	1309.	266.	541.	0.	0.	0.	0.	51.	0.
111	797.	1140.	859.	327.	266.	541.	301.	0.	96.	295.	51.	165.
112	399.	570.	859.	982.	1065.	811.	75.	425.	191.	0.	0.	110.
113	0.	570.	573.	655.	266.	0.	75.	425.	0.	591.	0.	110.
114	399.	1140.	859.	655.	0.	270.	0.	0.	96.	886.	0.	0.
115	399.	0.	859.	982.	533.	270.	75.	142.	0.	591.	0.	110.
116	399.	570.	286.	0.	266.	0.	0.	0.	0.	295.	0.	55.
117	598.	570.	573.	0.	266.	0.	150.	142.	0.	295.	0.	55.
118	199.	1140.	0.	0.	133.	0.	75.	0.	0.	0.	0.	0.
119	598.	0.	0.	327.	666.	270.	75.	0.	191.	886.	0.	55.
120	598.	1140.	286.	327.	0.	0.	0.	142.	96.	0.	51.	0.
121	399.	0.	1431.	0.	133.	270.	0.	0.	0.	0.	0.	0.
122	1595.	0.	0.	0.	266.	0.	75.	0.	0.	591.	0.	110.
123	399.	0.	0.	0.	0.	0.	0.	0.	96.	295.	51.	55.
124	598.	1140.	859.	0.	0.	0.	0.	0.	0.	295.	51.	0.
125	199.	0.	286.	0.	133.	0.	0.	0.	0.	295.	0.	0.
126	0.	0.	0.	327.	0.	541.	0.	0.	0.	295.	0.	0.
127	399.	0.	286.	327.	133.	0.	0.	0.	0.	0.	0.	0.
128	0.	0.	286.	0.	0.	0.	0.	0.	0.	0.	0.	55.
129	0.	0.	286.	0.	0.	0.	150.	0.	0.	0.	0.	0.
130	199.	0.	0.	0.	0.	0.	0.	0.	0.	295.	0.	0.
131	0.	0.	0.	0.	0.	270.	0.	0.	0.	0.	0.	0.
132	199.	1140.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
133	0.	570.	0.	0.	266.	0.	75.	0.	0.	295.	0.	0.
134	0.	0.	573.	0.	0.	0.	0.	0.	0.	0.	0.	0.
135	0.	0.	0.	0.	0.	0.	75.	0.	0.	295.	0.	0.
136	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
137	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
138	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
139	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
140	399.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
141	0.	0.	286.	0.	0.	0.	0.	0.	96.	0.	0.	0.
142	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
143	0.	0.	286.	0.	0.	0.	0.	0.	0.	0.	0.	55.
144	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	55.
145	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
146	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
147	0.	570.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
148	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
149	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
150	0.	0.	286.	0.	0.	0.	0.	0.	0.	0.	0.	0.
151	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
152	0.	0.	286.	0.	0.	0.	0.	0.	0.	0.	0.	0.
153	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
154	0.	0.	0.	0.	0.	0.	0.	0.	96.	0.	0.	0.
155	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
156	0.	0.	286.	0.	0.	0.	0.	0.	0.	0.	0.	0.
157	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
158	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
159	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
160	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
161	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

Table 12c. (cont.)

162	199.	0.	286.	0.	0.	0.	0.	0.	0.	0.	0.	0.
163	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
164	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
165	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
166	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
167	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
168	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
169	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
170	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
171	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
172	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
173	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
174	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
175	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
176	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
177	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
178	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
179	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
180	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
181	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
182	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
183	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
184	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
185	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
186	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
187	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
188	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
189	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
190	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
191	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
192	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
193	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
194	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
195	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
196	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
197	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
198	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
199	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
All	23122.	37636.	38075.	34364.	17309.	34894.	12257.	20535.	7178.	32195.	3562.	6002.

Table 13a. Estimated total headboat catch at length by calendar year for the Atlantic greater amberjack stock.

Sector and Mode are HEADBOAT												
CM	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
3	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
6	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
8	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
9	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
10	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
12	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
13	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
14	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
15	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
16	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
17	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
18	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
19	0.	0.	0.	0.	128.	0.	0.	0.	0.	0.	0.	0.
20	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
21	0.	0.	109.	0.	0.	0.	0.	0.	0.	0.	0.	0.
22	0.	0.	18.	0.	0.	0.	0.	0.	0.	0.	0.	0.
23	0.	0.	91.	0.	0.	0.	0.	0.	0.	0.	0.	0.
24	0.	0.	126.	0.	0.	0.	0.	0.	0.	0.	0.	0.
25	0.	82.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
26	103.	0.	18.	261.	128.	0.	0.	0.	0.	0.	0.	0.
27	20.	0.	200.	87.	0.	0.	0.	0.	0.	0.	0.	0.
28	20.	0.	491.	87.	0.	0.	0.	58.	0.	0.	0.	0.
29	0.	0.	182.	0.	0.	0.	59.	58.	0.	0.	0.	0.
30	0.	0.	709.	87.	0.	0.	0.	0.	0.	0.	0.	0.
31	0.	0.	582.	0.	128.	0.	0.	0.	0.	0.	0.	0.
32	0.	0.	200.	121.	0.	0.	0.	58.	0.	0.	0.	0.
33	0.	82.	218.	87.	0.	0.	0.	0.	0.	0.	37.	0.
34	103.	82.	765.	87.	128.	0.	0.	0.	0.	0.	0.	0.
35	103.	164.	291.	87.	0.	0.	59.	0.	0.	128.	37.	0.
36	334.	164.	126.	67.	0.	0.	0.	0.	0.	0.	0.	0.
37	834.	0.	182.	0.	0.	0.	0.	0.	0.	0.	0.	0.
38	584.	246.	91.	0.	0.	0.	0.	0.	0.	0.	0.	0.
39	270.	82.	91.	0.	0.	19.	0.	0.	0.	0.	0.	0.
40	751.	164.	274.	0.	0.	38.	59.	0.	0.	0.	0.	0.
41	334.	82.	200.	174.	128.	19.	0.	0.	0.	0.	0.	0.
42	437.	246.	274.	0.	0.	19.	0.	0.	0.	0.	0.	0.
43	250.	164.	456.	34.	0.	19.	0.	0.	0.	0.	0.	0.
44	250.	0.	0.	261.	0.	0.	0.	0.	0.	0.	0.	0.
45	250.	246.	274.	208.	128.	38.	0.	0.	0.	0.	0.	0.
46	520.	164.	0.	0.	0.	19.	0.	0.	44.	0.	0.	0.
47	250.	491.	35.	87.	0.	38.	0.	0.	0.	0.	0.	0.
48	103.	82.	0.	261.	128.	0.	0.	0.	44.	0.	0.	0.
49	83.	0.	35.	87.	128.	0.	0.	58.	0.	0.	0.	0.
50	417.	0.	0.	87.	0.	0.	59.	0.	44.	0.	0.	0.
51	250.	164.	0.	67.	128.	0.	0.	0.	0.	0.	0.	0.

Table 13a. (cont.)

52	854.	82.	0.	121.	0.	19.	0.	0.	0.	128.	0.	0.
53	603.	82.	91.	101.	128.	19.	0.	0.	0.	64.	0.	0.
54	417.	82.	0.	328.	128.	38.	0.	58.	0.	0.	0.	0.
55	250.	164.	18.	0.	0.	146.	0.	58.	44.	0.	0.	0.
56	250.	164.	18.	0.	0.	19.	0.	0.	0.	128.	0.	0.
57	250.	246.	126.	208.	0.	0.	0.	0.	44.	192.	37.	0.
58	334.	164.	126.	154.	0.	0.	119.	0.	0.	0.	0.	0.
59	500.	82.	18.	154.	0.	0.	59.	0.	0.	0.	0.	0.
60	334.	0.	0.	0.	0.	0.	0.	0.	87.	64.	37.	0.
61	250.	164.	382.	87.	256.	0.	0.	0.	44.	0.	37.	0.
62	834.	82.	18.	121.	128.	19.	0.	0.	0.	0.	0.	0.
63	250.	82.	0.	0.	128.	73.	119.	0.	0.	192.	0.	0.
64	250.	164.	53.	34.	0.	19.	119.	0.	0.	0.	0.	0.
65	334.	82.	91.	34.	128.	19.	178.	115.	0.	0.	0.	0.
66	83.	164.	91.	0.	128.	0.	0.	115.	87.	0.	37.	0.
67	334.	164.	91.	0.	0.	19.	119.	0.	44.	64.	74.	0.
68	334.	82.	0.	174.	256.	19.	119.	58.	131.	64.	74.	0.
69	186.	0.	200.	87.	128.	19.	59.	230.	0.	64.	37.	0.
70	520.	82.	0.	34.	128.	165.	178.	230.	44.	128.	0.	0.
71	20.	82.	91.	34.	128.	146.	238.	115.	174.	128.	0.	0.
72	500.	164.	182.	0.	384.	165.	178.	173.	218.	0.	37.	0.
73	270.	0.	0.	0.	512.	73.	178.	115.	87.	64.	37.	0.
74	83.	0.	0.	0.	256.	0.	59.	173.	174.	64.	111.	0.
75	0.	82.	0.	87.	512.	19.	0.	346.	87.	128.	37.	0.
76	167.	164.	0.	34.	0.	92.	297.	173.	174.	128.	37.	0.
77	83.	0.	109.	0.	128.	111.	178.	0.	87.	64.	0.	0.
78	250.	246.	18.	0.	640.	19.	534.	288.	174.	128.	74.	0.
79	186.	246.	18.	87.	256.	184.	59.	173.	305.	192.	37.	0.
80	39.	164.	0.	87.	128.	146.	59.	346.	131.	128.	148.	0.
81	167.	164.	182.	87.	128.	238.	534.	576.	174.	128.	37.	0.
82	103.	82.	91.	87.	0.	257.	119.	288.	174.	64.	74.	0.
83	20.	246.	18.	87.	128.	203.	59.	115.	87.	128.	37.	0.
84	59.	0.	18.	101.	768.	73.	59.	115.	44.	64.	0.	0.
85	20.	164.	91.	0.	0.	92.	178.	173.	174.	128.	74.	0.
86	186.	246.	0.	295.	128.	165.	178.	403.	87.	64.	0.	0.
87	39.	164.	0.	0.	128.	146.	119.	115.	44.	256.	74.	0.
88	103.	246.	0.	174.	0.	311.	59.	230.	0.	256.	74.	0.
89	59.	328.	0.	174.	128.	457.	119.	403.	174.	320.	185.	0.
90	103.	82.	365.	67.	128.	92.	119.	173.	87.	128.	148.	0.
91	186.	82.	91.	34.	128.	365.	238.	230.	44.	128.	111.	0.
92	20.	164.	200.	0.	0.	219.	59.	173.	0.	128.	185.	0.
93	20.	82.	91.	121.	128.	219.	119.	346.	87.	192.	111.	0.
94	103.	0.	400.	382.	128.	257.	119.	58.	44.	128.	74.	0.
95	123.	0.	18.	87.	128.	457.	59.	115.	131.	64.	148.	0.
96	270.	0.	18.	348.	0.	695.	59.	58.	131.	64.	0.	0.
97	0.	82.	182.	87.	128.	146.	0.	0.	174.	0.	111.	0.
98	103.	82.	0.	0.	0.	73.	59.	0.	174.	64.	0.	0.
99	39.	0.	274.	0.	128.	165.	297.	0.	87.	128.	74.	0.
100	20.	328.	18.	174.	0.	73.	297.	0.	44.	64.	111.	0.
101	20.	164.	274.	0.	0.	219.	119.	58.	44.	0.	37.	0.
102	39.	82.	274.	0.	128.	73.	119.	0.	0.	0.	74.	0.
103	39.	0.	291.	87.	256.	146.	178.	115.	0.	64.	0.	0.
104	206.	164.	109.	0.	0.	0.	178.	0.	44.	128.	0.	0.
105	20.	0.	0.	435.	0.	0.	59.	0.	44.	0.	0.	0.
106	83.	0.	182.	87.	0.	19.	59.	0.	0.	0.	0.	0.

Table 13a. (cont.)

107	0.	246.	109.	0.	128.	219.	0.	0.	0.	64.	0.	0.
108	0.	82.	18.	0.	128.	146.	59.	0.	0.	0.	0.	0.
109	0.	0.	18.	0.	0.	219.	0.	0.	0.	0.	0.	0.
110	0.	82.	0.	87.	0.	19.	0.	58.	0.	0.	37.	0.
111	0.	0.	0.	87.	0.	0.	0.	58.	44.	0.	0.	0.
112	0.	82.	91.	121.	0.	0.	0.	0.	44.	0.	37.	0.
113	0.	246.	91.	0.	0.	0.	178.	0.	0.	0.	0.	0.
114	0.	164.	0.	87.	0.	19.	0.	0.	0.	0.	0.	0.
115	0.	0.	91.	87.	0.	0.	59.	0.	0.	0.	0.	0.
116	0.	82.	109.	0.	0.	73.	59.	0.	0.	0.	0.	0.
117	0.	164.	91.	0.	0.	0.	0.	0.	0.	0.	37.	0.
118	20.	82.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
119	20.	0.	18.	0.	0.	0.	0.	0.	0.	0.	0.	0.
120	0.	0.	0.	0.	0.	0.	59.	0.	0.	0.	0.	0.
121	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
122	0.	0.	18.	0.	0.	73.	0.	58.	0.	0.	0.	0.
123	0.	82.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
124	0.	82.	0.	87.	0.	73.	0.	0.	0.	0.	0.	0.
125	0.	0.	0.	0.	0.	73.	0.	0.	0.	0.	0.	0.
126	0.	82.	0.	0.	128.	73.	0.	0.	0.	0.	0.	0.
127	0.	0.	18.	0.	0.	0.	0.	0.	44.	0.	0.	0.
128	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
129	20.	0.	0.	87.	0.	0.	0.	0.	0.	0.	0.	0.
130	0.	82.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
131	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
132	0.	0.	0.	0.	0.	0.	0.	0.	0.	64.	0.	0.
133	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
134	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
135	0.	0.	0.	0.	0.	73.	0.	0.	0.	0.	0.	0.
136	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
137	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
138	0.	0.	0.	34.	0.	0.	0.	0.	0.	0.	0.	0.
139	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
140	0.	0.	0.	34.	0.	0.	0.	0.	0.	0.	0.	0.
141	0.	0.	0.	0.	0.	0.	0.	0.	44.	0.	0.	0.
142	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
143	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
144	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
145	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
146	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
147	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
148	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
149	0.	0.	0.	0.	0.	0.	0.	0.	44.	0.	0.	0.
150	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
151	0.	0.	0.	0.	0.	0.	0.	0.	44.	0.	0.	0.
152	0.	82.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
153	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
154	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
155	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
156	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
157	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
158	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
159	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
160	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
161	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

Table 13. (cont.)

162	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
163	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
164	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
165	20.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
166	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
167	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
168	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
169	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
170	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
171	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
172	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
173	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
174	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
175	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
176	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
177	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
178	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
179	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
180	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
181	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
182	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
183	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
184	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
185	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
186	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
187	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
188	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
189	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
190	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
191	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
192	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
193	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
194	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
195	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
196	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
197	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
198	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
199	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
All	17260.	10564.	11636.	7822.	8709.	7975.	7066.	6911.	4615.	5052.	2812.	0.

Table 14. Estimated total landed catch (numbers of fish) of the Atlantic greater amberjack by fishing year and fishery.

FISHERY	FISHING YEAR										
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
REC	89453.	59125.	77600.	46399.	52728.	52823.	58251.	52205.	51959.	38959.	11515.
COM	117481.	91369.	59578.	76145.	68808.	71943.	68466.	78624.	67938.	79048.	36600.
HBT	16687.	10536.	11641.	6388.	9511.	7323.	7408.	6471.	4632.	5145.	2425.
ALL	223621.	161030.	148819.	128932.	131047.	132089.	132125.	137300.	124529.	123152.	50540.

Table 15. Estimated total landed weight (POUNDS) of the Atlantic greater amberjack by fishing year and fishery.

FISHERY	FISHING YEAR										
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
REC	2871752.	1830105.	2409432.	1215898.	1361830.	1293010.	1343261.	1197026.	1427398.	1050428.	305579.
COM	1391539.	1294702.	1289913.	1931259.	2319487.	2248897.	1898382.	1964730.	1890386.	1956890.	896872.
HBT	158171.	168731.	142456.	101234.	151014.	163307.	139496.	111002.	89373.	90225.	47154.
ALL	4421461.	3293539.	3941802.	3246391.	3632130.	3704713.	3361138.	3272757.	3407156.	3097544.	1249606.

Table 16. Proportional difference at average catch at age between pre regulation period (1987-1991) and post regulation period (1992-1997) for the Atlantic greater amberjack stock.

Age	Fishery	
	Commercial	Headdboat
0	0.00242	0.01407
1	0.03868	0.11828
2	0.13183	0.14712
3	0.07829	0.09348
4	0.07021	0.01051
5	0.04796	

Table 17a. Estimated total landed and discarded recreational catch (numbers of fish) of the Atlantic greater amberjack.

Fishery	AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Recreational	0	0.	0.	12.	106.	399.	0.	29.	0.	0.	0.	0.
	1	108.	201.	1880.	1225.	338.	54.	374.	147.	0.	231.	36.
	2	2731.	806.	279.	906.	568.	761.	440.	667.	288.	137.	65.
	3	3718.	1892.	1395.	2234.	1181.	1741.	216.	63.	1748.	2031.	372.
	4	3279.	1755.	1765.	1410.	1451.	1784.	2023.	1503.	1065.	1069.	897.
	5	5647.	3481.	1877.	3019.	9231.	4837.	4585.	5860.	2348.	2477.	957.
	6	6915.	6259.	6466.	7016.	13257.	12046.	12991.	14167.	6194.	4925.	1594.
	7	9926.	3647.	6526.	4686.	5320.	11367.	12667.	11480.	10128.	8202.	4659.
	8	6109.	8831.	14915.	6028.	6854.	10976.	12238.	9061.	12113.	9016.	3857.
	9	12462.	14493.	19724.	9294.	6723.	10864.	8065.	5469.	7761.	5837.	3745.
	10	11419.	7478.	10426.	4844.	4943.	2938.	4027.	3870.	5023.	3835.	2207.
	11	7071.	5039.	7797.	4561.	5264.	2117.	1858.	2389.	2947.	2193.	236.
	12	6274.	4004.	2880.	1777.	3596.	418.	833.	697.	1311.	1300.	200.
	13	11747.	1480.	2895.	1139.	2553.	669.	440.	478.	1769.	1191.	415.
	14	4032.	1848.	1572.	616.	443.	394.	0.	55.	1703.	1058.	279.
	15	1533.	3.	1431.	538.	570.	587.	123.	0.	288.	38.	18.
	16	1057.	448.	343.	0.	31.	259.	282.	0.	288.	279.	23.
	17	1307.	2070.	23.	0.	853.	268.	203.	0.	288.	288.	0.
	18	223.	5.	625.	246.	0.	88.	203.	0.	288.	258.	0.
	19+	2124.	1241.	2332.	0.	0.	41.	0.	114.	660.	0.	83.
	ALL	97682.	64961.	85183.	49645.	63575.	62159.	61597.	56020.	56210.	44346.	19544.

Table 17b. Estimated total landed and discarded commercial catch (numbers of fish) of the Atlantic greater amberjack.

Fishery	AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
COMMERCIAL	0	0.	20.	97.	837.	48.	35.	33.	38.	33.	38.	27.
	1	2946.	3921.	4777.	3374.	2264.	674.	762.	1029.	800.	815.	517.
	2	35002.	16445.	2901.	3052.	1885.	2170.	2266.	3466.	2776.	2922.	2462.
	3	15592.	14588.	4142.	3950.	3974.	1882.	2602.	2169.	2826.	4131.	3103.
	4	15219.	9239.	6856.	7533.	3379.	1812.	3066.	2577.	2809.	4455.	4712.
	5	17576.	10877.	3857.	3198.	1479.	2483.	4093.	3012.	2827.	5126.	4048.
	6	6678.	9184.	7067.	5078.	1839.	3807.	6965.	9986.	3338.	6905.	5585.
	7	4532.	9055.	5771.	3279.	2102.	9009.	12437.	18659.	8142.	19914.	11955.
	8	4614.	5299.	4186.	8924.	3818.	13812.	12134.	21501.	16675.	19711.	12199.
	9	10747.	6505.	4150.	12172.	8809.	13928.	9440.	10978.	16623.	10705.	7734.
	10	2252.	3440.	5359.	7848.	7753.	9543.	7091.	5627.	6916.	4388.	2917.
	11	47.	134.	3535.	7024.	6801.	5593.	4438.	2766.	3713.	1922.	1482.
	12	141.	135.	2280.	3923.	8034.	4273.	3251.	796.	2255.	2188.	1206.
	13	2114.	1619.	2245.	2558.	5479.	3594.	2305.	1071.	1589.	595.	819.
	14	17.	72.	165.	1991.	3256.	1750.	1012.	336.	375.	489.	529.
	15	3.	828.	1624.	1920.	2097.	1074.	714.	82.	579.	142.	300.
	16	0.	0.	0.	30.	1723.	1077.	16.	77.	8.	378.	171.
	17	0.	0.	0.	10.	1487.	155.	347.	4.	448.	23.	15.
	18	0.	20.	562.	8.	859.	208.	159.	2.	225.	3.	39.
	19+	0.	7.	5.	21.	1412.	315.	392.	257.	0.	40.	161.
	ALL	117480.	91368.	59579.	76140.	68498.	77194.	73523.	84433.	72957.	84859.	59981.

Table 17c. Estimated total landed and discarded headboat catch (numbers of fish) of the Atlantic greater amberjack.

Fishery	AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Headboat	0	29.	62.	472.	66.	164.	22.	33.	20.	13.	14.	7.
	1	1467.	1155.	3682.	704.	339.	189.	308.	307.	113.	254.	153.
	2	4080.	1846.	1486.	916.	501.	420.	302.	231.	252.	180.	71.
	3	3911.	1142.	786.	1048.	626.	391.	407.	257.	280.	632.	118.
	4	2761.	921.	792.	453.	1221.	400.	1024.	769.	509.	537.	241.
	5	1552.	884.	394.	269.	2719.	806.	1866.	1709.	1293.	886.	384.
	6	831.	1142.	466.	657.	1537.	1281.	1283.	1797.	975.	969.	352.
	7	677.	863.	971.	609.	861.	1584.	866.	1374.	455.	1262.	726.
	8	562.	433.	867.	583.	678.	1439.	707.	191.	697.	431.	349.
	9	451.	658.	895.	494.	490.	459.	748.	150.	149.	260.	114.
	10	92.	347.	285.	157.	268.	466.	85.	89.	34.	51.	41.
	11	86.	445.	288.	206.	5.	43.	219.	21.	50.	9.	26.
	12	72.	293.	168.	27.	6.	51.	82.	0.	0.	4.	29.
	13	17.	38.	38.	1.	10.	85.	45.	52.	0.	0.	0.
	14	23.	137.	12.	66.	101.	158.	2.	1.	0.	0.	0.
	15	18.	32.	28.	16.	56.	29.	0.	1.	40.	0.	0.
	16	25.	69.	12.	51.	0.	0.	0.	0.	2.	33.	0.
	17	0.	0.	0.	0.	0.	0.	0.	0.	2.	27.	0.
	18	0.	0.	0.	0.	5.	62.	0.	0.	0.	0.	0.
	19+	33.	69.	0.	34.	6.	0.	0.	8.	123.	0.	0.
ALL		16687.	10536.	11642.	6357.	9512.	7885.	7976.	6967.	4987.	5539.	2611.

Table 17d. Estimated total landed and discarded catch (numbers of fish) of the Atlantic greater amberjack for all fisheries combined.

Fishery	AGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
ALL FISHERIES	0	29.	82.	581.	1009.	611.	57.	95.	58.	46.	52.	34.
	1	4521.	5277.	10339.	5303.	2941.	917.	1444.	1483.	913.	1300.	706.
	2	41813.	19097.	4666.	4674.	2954.	3351.	3008.	4364.	3316.	3239.	2598.
	3	23221.	17802.	6323.	7242.	5780.	4014.	3225.	2489.	4854.	6794.	3593.
	4	21259.	11915.	9413.	9396.	6051.	3996.	6113.	4839.	4383.	6061.	5850.
	5	24775.	15242.	6128.	6486.	13429.	8126.	10543.	10581.	6468.	8488.	5389.
	6	14424.	16585.	13999.	12761.	16633.	17134.	21239.	26950.	10507.	12800.	7531.
	7	15135.	13565.	13268.	8574.	8303.	21960.	25970.	31513.	18725.	29378.	17240.
	8	11286.	14563.	19968.	15535.	11260.	26227.	26079.	30753.	29485.	29158.	16405.
	9	23660.	21666.	24769.	21960.	16022.	25251.	18253.	16597.	24533.	16792.	11594.
	10	13763.	11266.	16070.	12849.	12964.	12967.	11203.	9586.	11973.	8254.	5165.
	11	7204.	5618.	11620.	11791.	12070.	7753.	6515.	5176.	6710.	4124.	1744.
	12	6487.	4432.	5328.	5127.	11636.	4742.	4166.	1493.	3566.	3492.	1435.
	13	13878.	3117.	5178.	3698.	8042.	4328.	2790.	1601.	3358.	1786.	1234.
	14	4072.	2057.	1749.	2673.	3800.	2302.	1014.	392.	2078.	1547.	808.
	15	1554.	863.	3083.	2474.	2723.	1640.	837.	83.	907.	180.	318.
	16	1082.	517.	355.	81.	1754.	1396.	298.	77.	298.	690.	194.
	17	1307.	2070.	23.	10.	2340.	423.	550.	4.	738.	318.	15.
	18	223.	25.	1187.	254.	864.	358.	362.	2.	513.	261.	39.
	19+	2157.	1317.	2397.	55.	1418.	356.	392.	379.	783.	40.	244.
ALL		231849.	166865.	156384.	132142.	141585.	147238.	143096.	147420.	134154.	134754.	82136.

Table 18. Eight estimates of natural mortality, M, for the Atlantic greater amberjack stock. [Information taken from Potts et al. 1998].

Method	Estimate
Hoenig	0.25
Hoenig-Adj. For sample size	0.40
Pauly	0.14
Alverson and Carney	0.31
Roff	0.55
Rikhter and Evanov	0.53
Ralston	0.27
Alagaraja -S (t_{λ})=0.05	0.18
-S (t_{λ})=0.02	0.23
Mean Overall	0.32
Mean: Hoenig, Pauly, and Alagaraja	0.20

Figure 1. Reported commercial landings by calendar year for Atlantic Ocean greater amberjack in the southeastern United States, 1962-1998. Landings from the Florida Keys are included in the Atlantic stock. The 1998 values are preliminary. Units are whole weight (pounds).

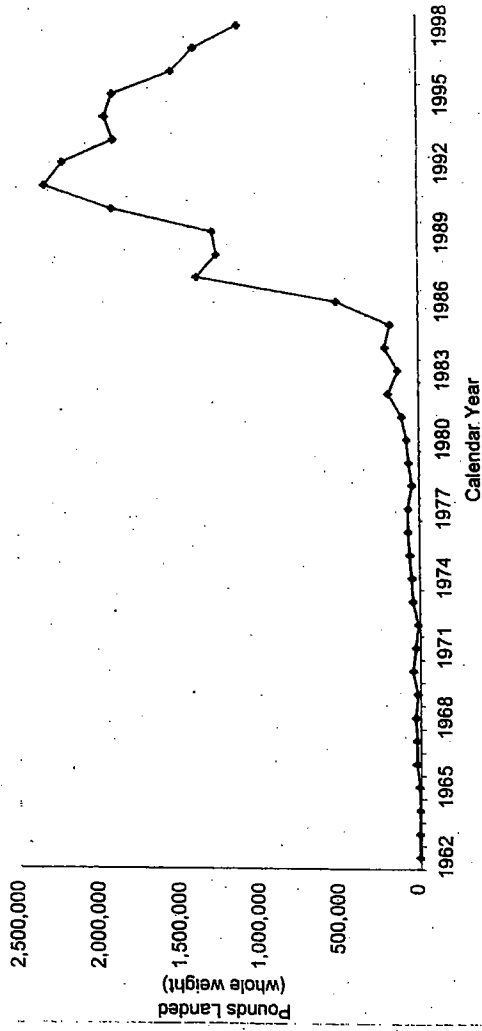


Figure 2. Reported commercial landings by gear type and calendar year for Atlantic Ocean greater amberjack in the southeastern United States, 1982-1998. The values for 1988 are preliminary. Landings from the Florida Keys are included in the Atlantic stock.

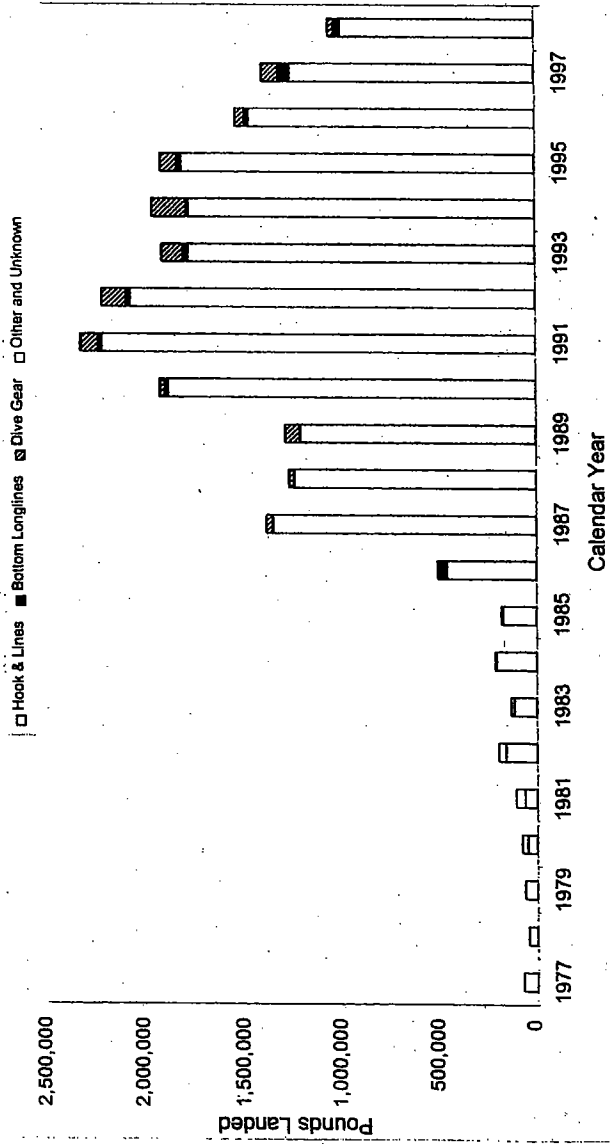


Figure 3. Spatial distribution of the reported commercial landings of Atlantic Ocean greater amberjack from the southeastern United States, 1977-1998 combined. Landings from the Florida Keys are included in the Atlantic stock. 1998 values are preliminary. Units are whole weight (pounds)

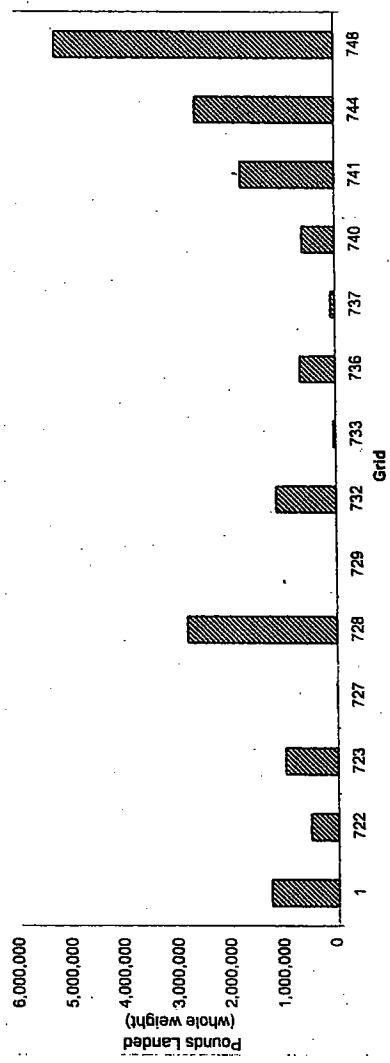


Figure 4. Reported commercial landings (percent) by month for Atlantic Ocean greater amberjack in the southeastern U.S., 1977-1998 combined. Landings for 1998 are preliminary. Landings from the Florida Keys are included in the Atlantic stock.



Figure 5. Estimated recreational catch (A+B1) of the Atlantic Ocean greater amberjack for the southeastern United States by source and calendar year, 1981-1998. Values for 1998 are preliminary. Units are number of fish. MRFSS includes Monroe county recreational catches (i.e., Florida Keys) in the Florida West Coast catch estimates; MRFSS estimates in this figure only include catches from Florida East Coast.

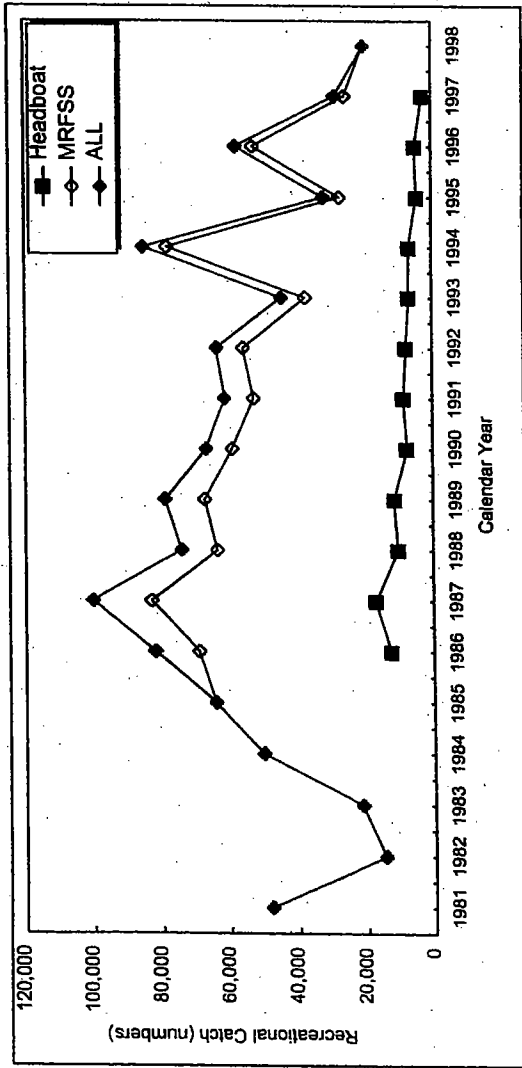


Figure 6b. Estimated recreational catch (A+B1) of the Atlantic Ocean greater amberjack for the southeastern United States by fishery and calendar year, 1981-1998. Values for 1998 are preliminary. Units are number of fish. MRFSS includes Monroe county recreational catches (i.e., Florida Keys) in the Florida West Coast catch estimates; MRFSS estimates in this figure only include catches from Florida East Coast.

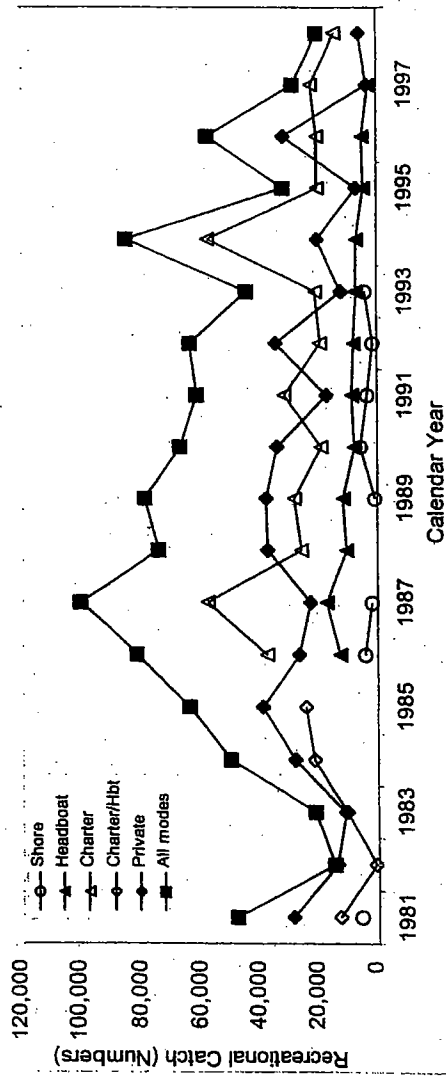


Figure 7. Proportion of recreational catch (A+B1) for Atlantic Ocean greater amberjack in the southeastern United States by two month wave and state based on MRFSS and NMFS Headboat data. Values for 1998 are preliminary. MRFSS includes Monroe county recreational catches (i.e., Florida Keys) in the Florida West coast estimates; MRFSS estimates in this figure only include catches from Florida East coast.

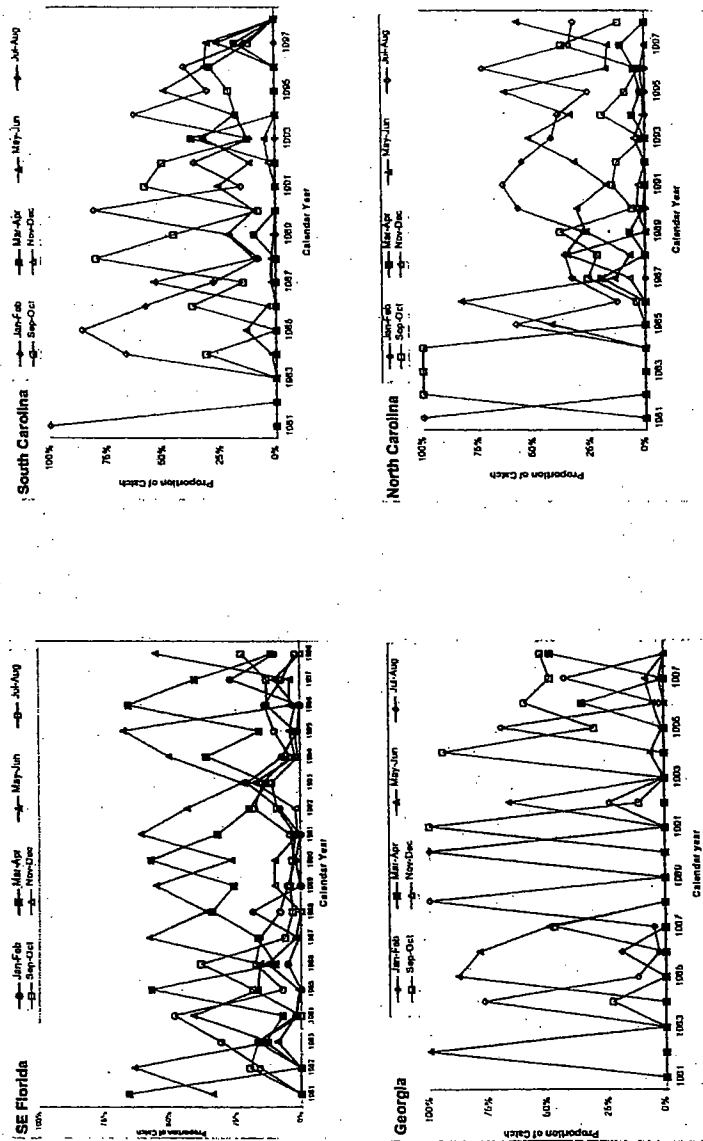


Figure 7. (cont.)

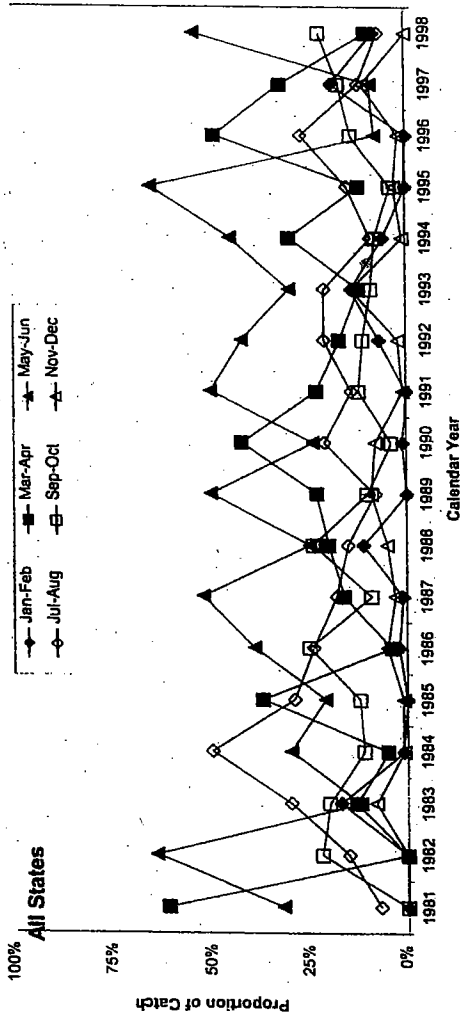


Figure 8. Distribution (percent) of Atlantic Ocean greater amberjack recreational harvest (A+B1) by mode (a) and two-month wave (b) based on MRFSS and NMFS Headboat data, 1981-1998. Values for 1998 are preliminary. MRFSS includes Monroe county recreational catches (i.e., Florida Keys) in the Florida West coast catch estimates; MRFSS estimates in this figure only include catches from Florida East coast.

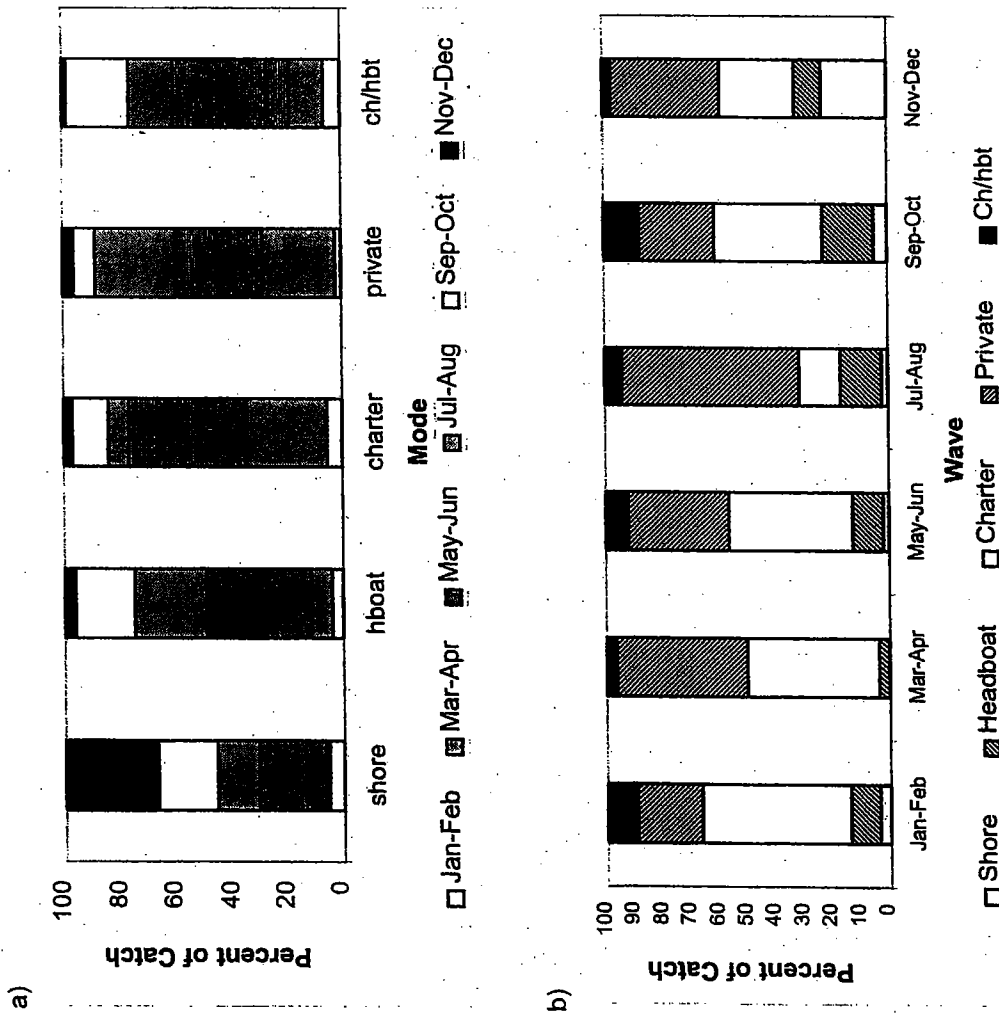


Figure 9. Estimated recreational harvest (percent, A+B1) of Atlantic Ocean greater amberjack by distance from shore and calendar year. Values for 1998 are preliminary. MRFSS estimates in this figure only include catches from Florida East Coast.

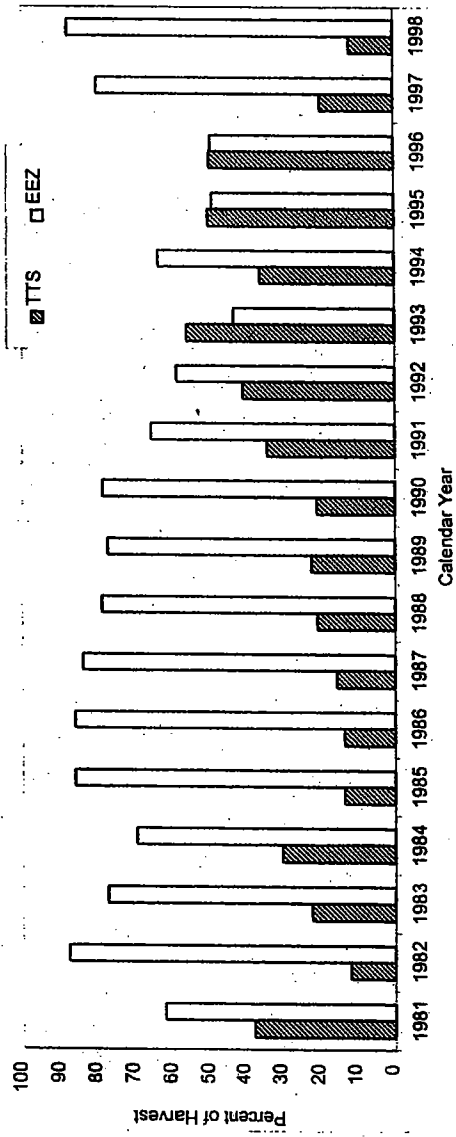


Figure 10. Estimated recreational harvest a) A+B1 and b) A+B1+B2 and disposition (percent released) of Atlantic Ocean greater amberjack by calendar year, based on MRFSS data. Values for 1998 are preliminary. Percent released equals number released (B2) divided by total caught (A+B1+B2). MRFSS includes Monroe county recreational catches (i.e., Florida Keys) in the Florida West Coast catch estimates; MRFSS estimates in this figure only include catches from Florida East Coast.

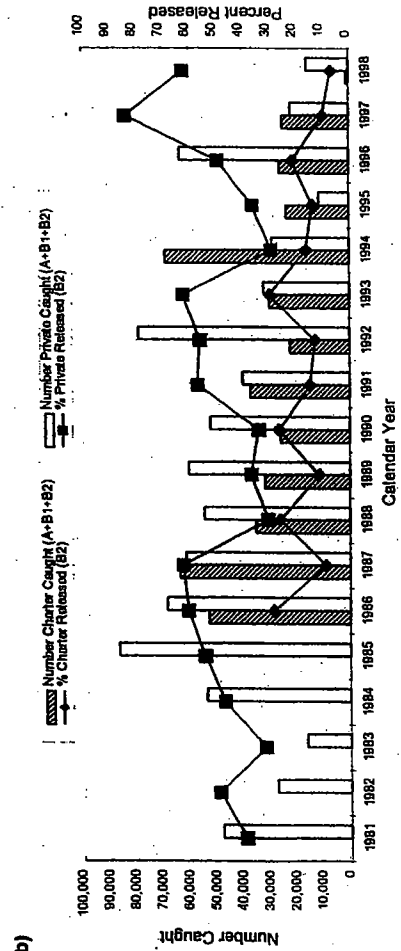
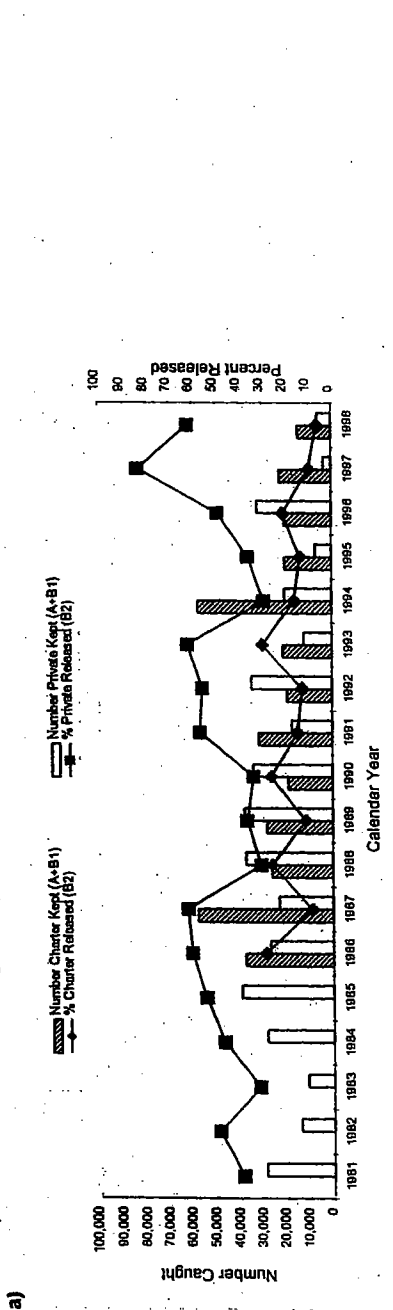


Figure 11. Recreational harvest of Atlantic Ocean greater amberjack (a) number released and total harvest and b) percentage of catch, by wave based on MRFSS data, 1981-1998 combined. Values from 1998 are preliminary. MRFSS includes Monroe county recreational catches (i.e., Florida Keys) in the Florida West Coast catch estimates; MRFSS estimates in this figure only include catches from Florida East Coast.

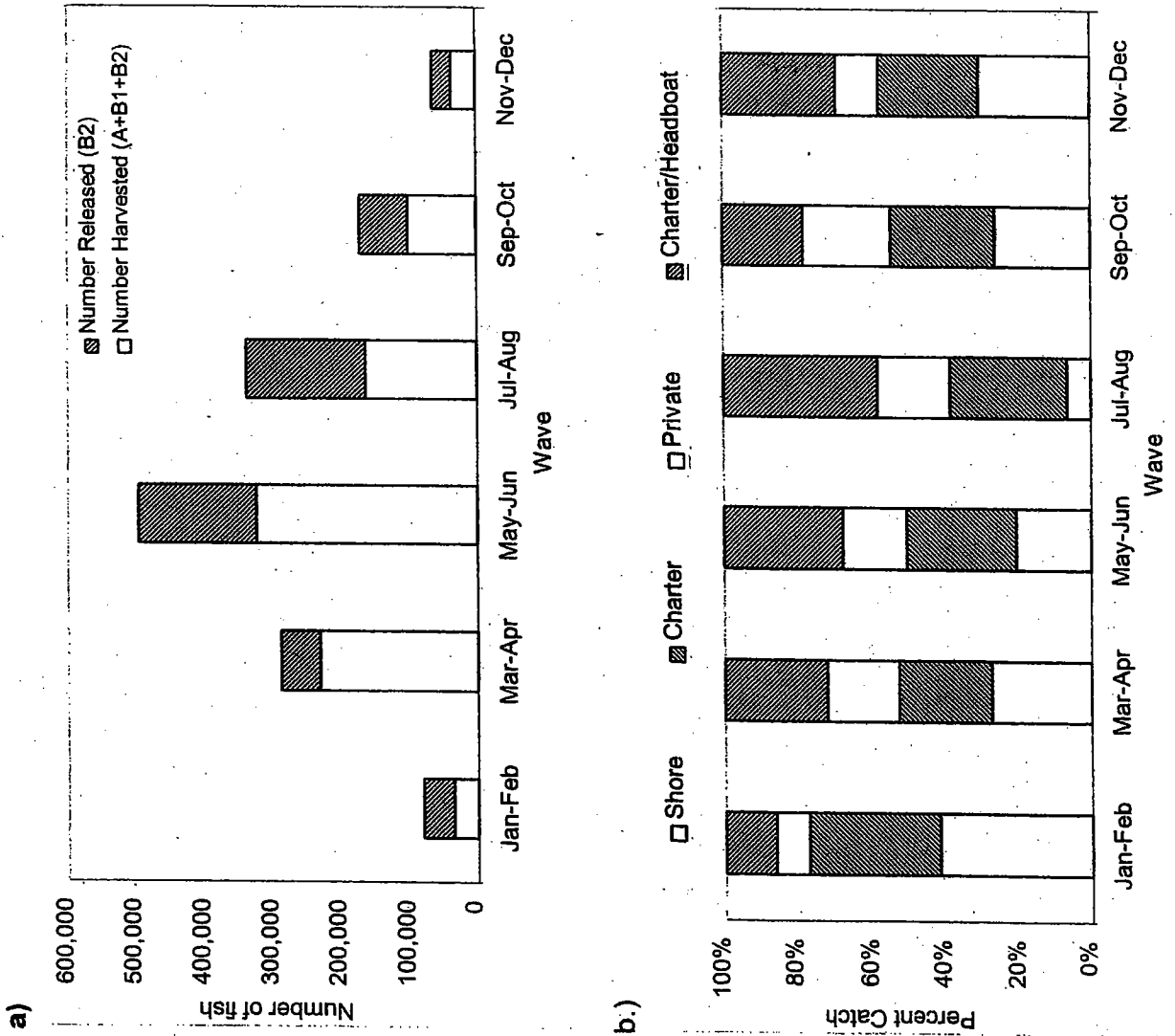


Figure 12. Disposition of greater amberjack caught by recreational fishermen from the Atlantic Ocean by all modes combined, 1981-1998 based on MRFSS data. Values from 1998 are preliminary. MRFSS includes Monroe county recreational catches (i.e., Florida Keys) in the Florida West Coast catch estimates; MRFSS estimates in this figure only include catches from Florida East Coast.

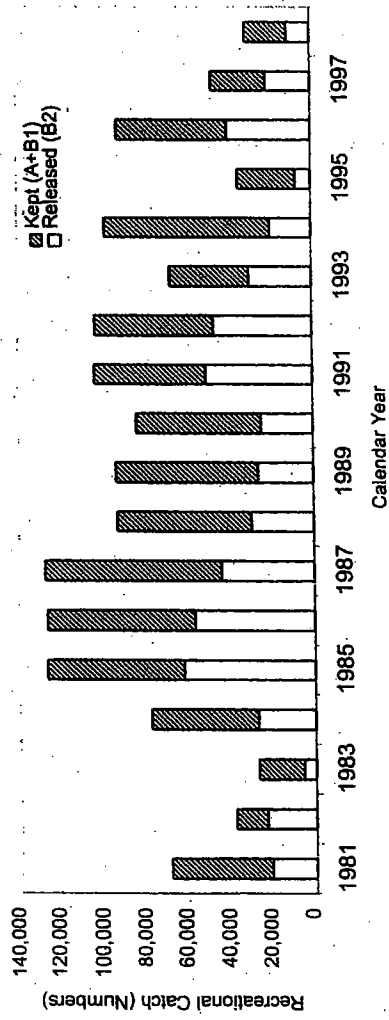


Figure 13f. Atlantic greater amberjack catch sample length distribution for recreational shore anglers for all years combined.

----- SECTOR=REC MODE_NEW=1, Fishery is Recreational Shore -----

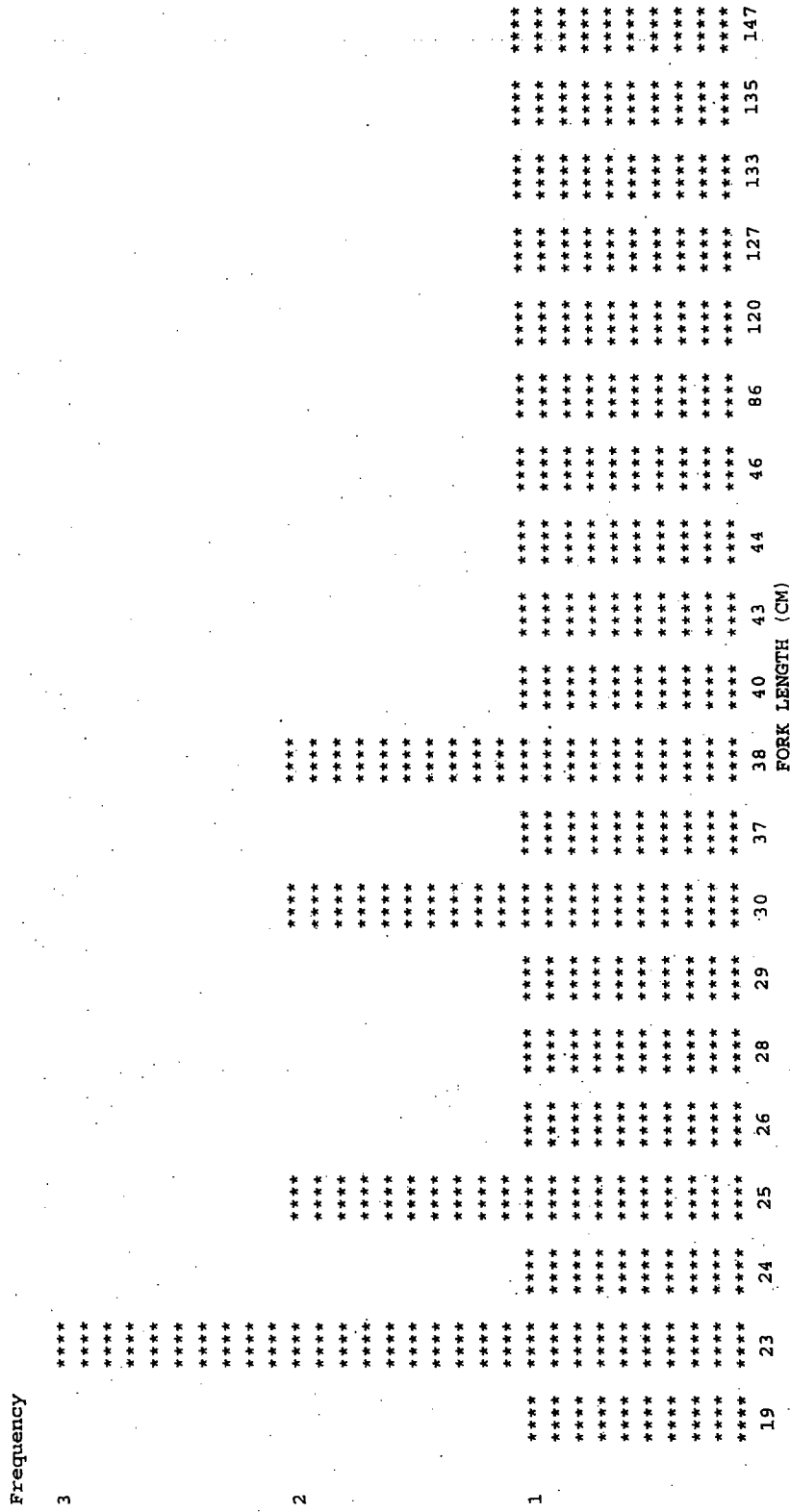


Figure 14a. Estimated total landed catch at length for the Atlantic greater amberjack for the commercial handline fishery.

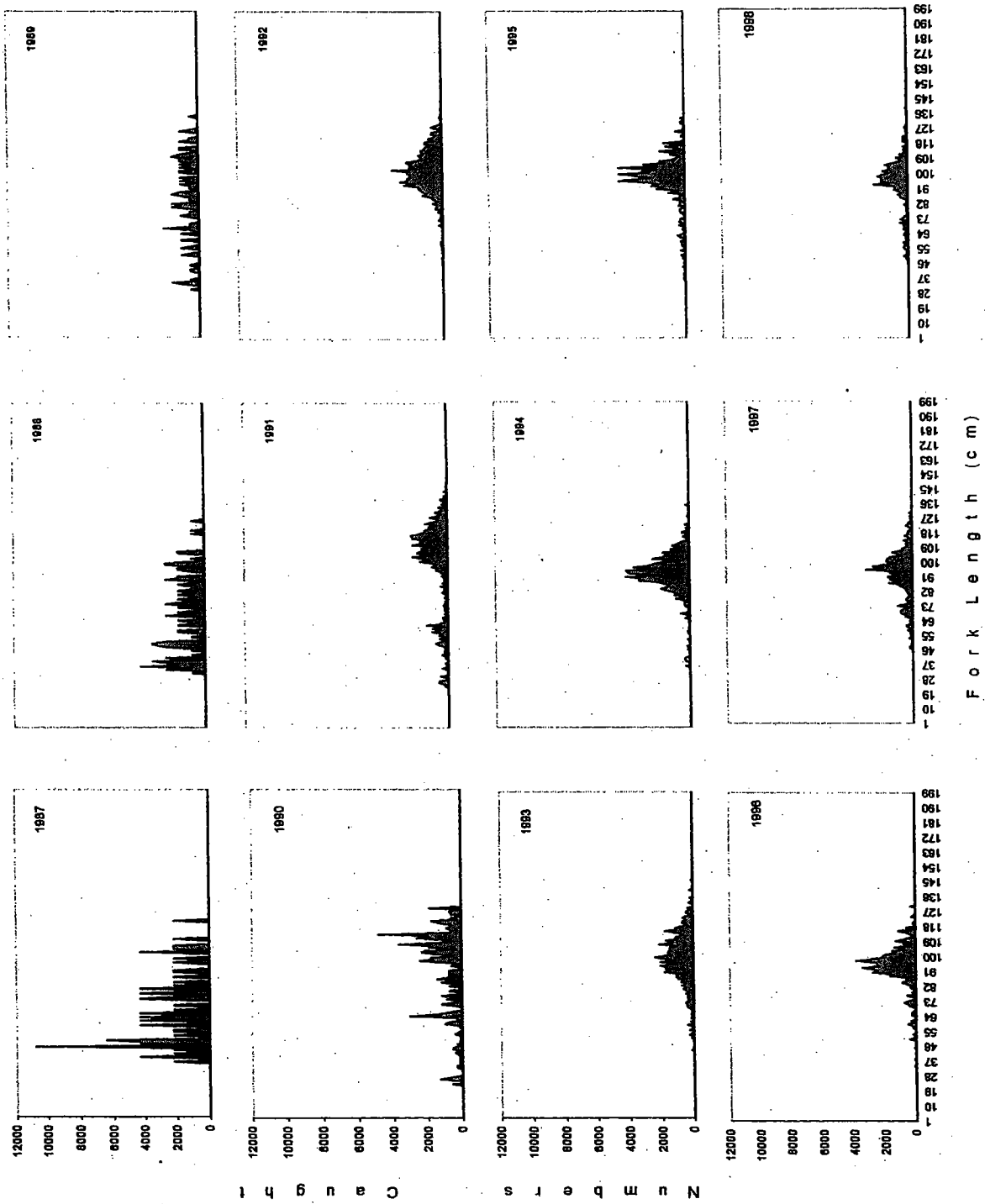


Figure 14b. Estimated total landed catch at length for the Atlantic greater amberjack for the commercial dive fishery.

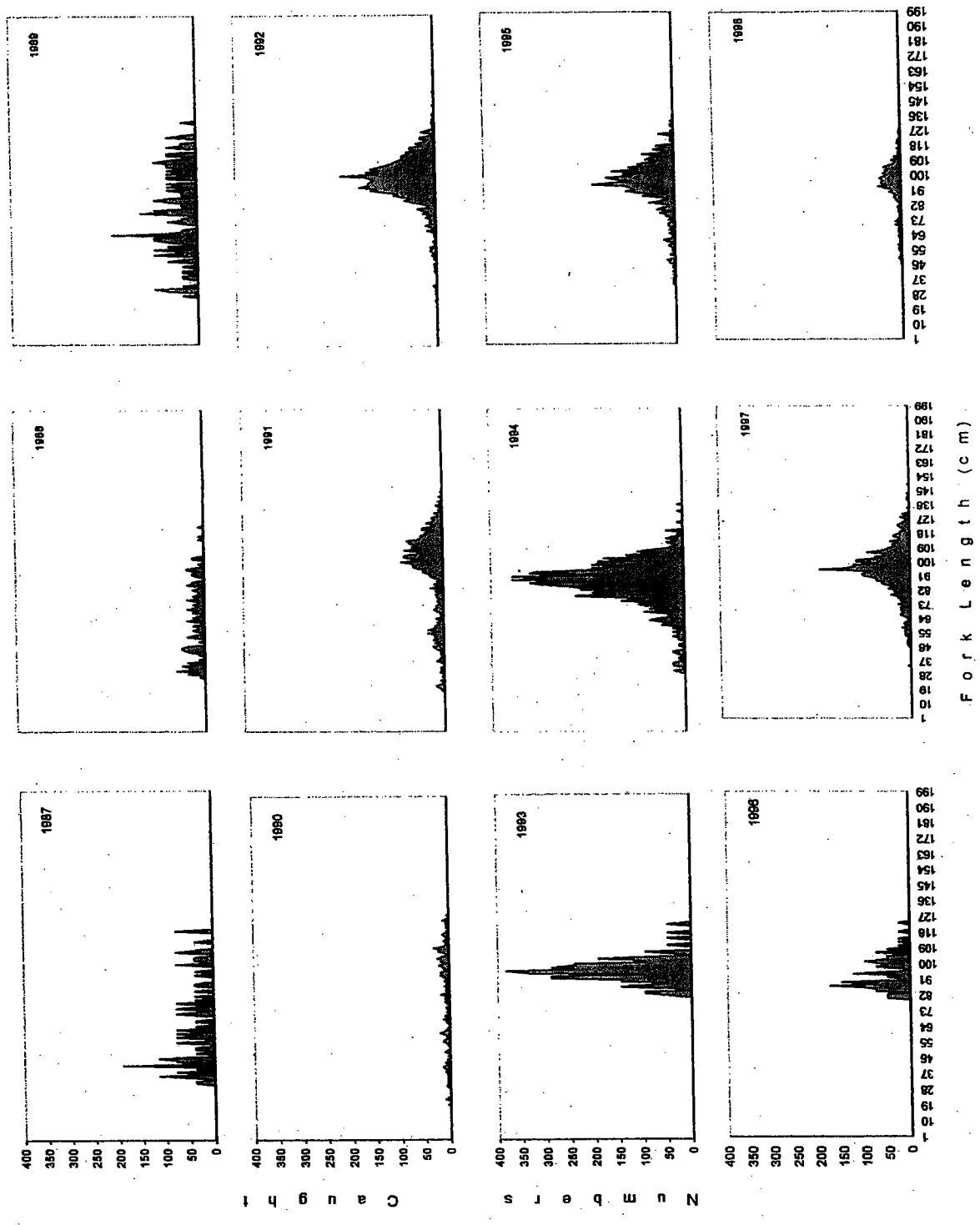


Figure 14c. Estimated total landed catch at length for the Atlantic greater amberjack for the commercial bottom longline fishery.

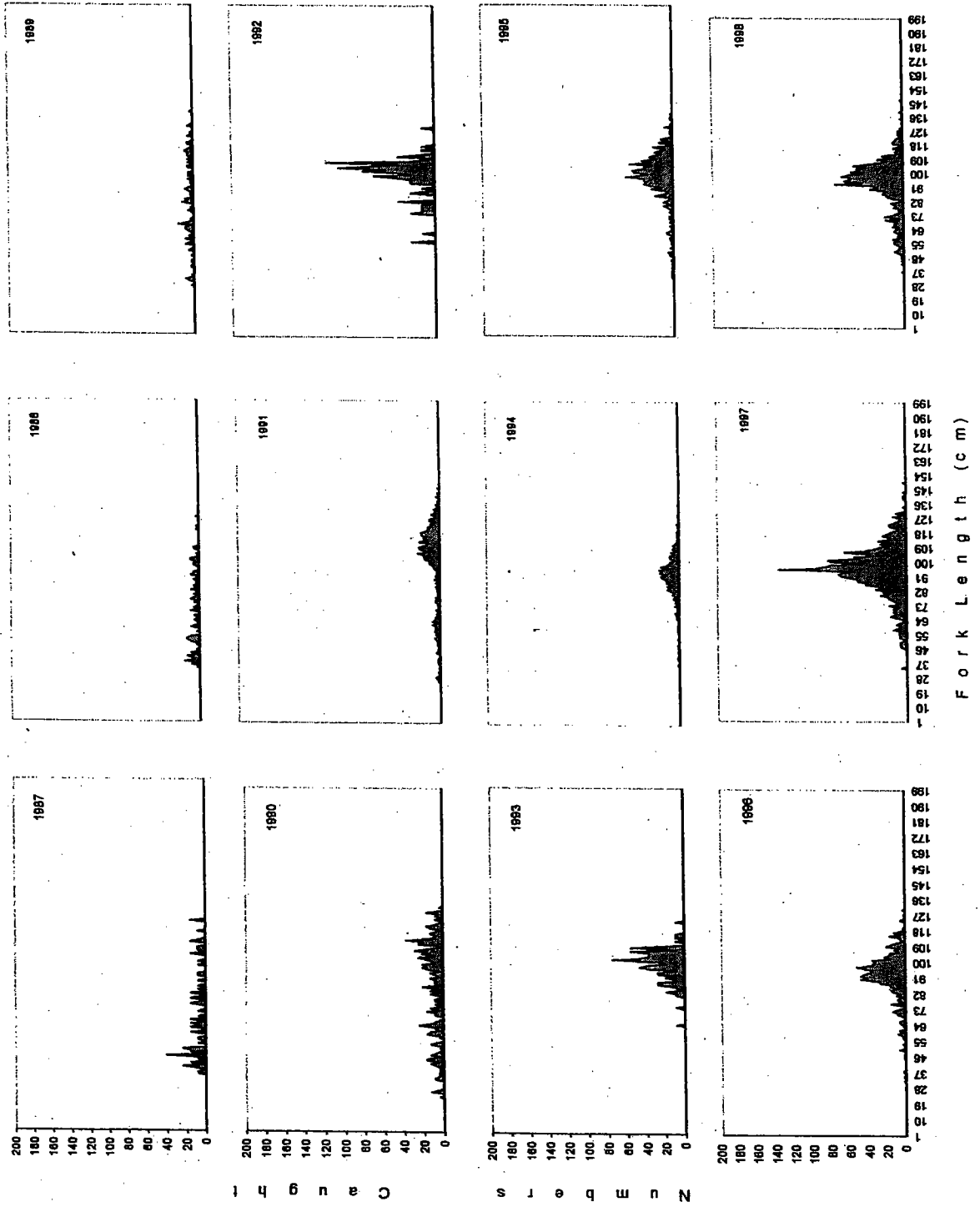


Figure 14d. Estimated total landed catch at length for the Atlantic greater amberjack for other commercial gears (trap, seine, fish trawl, etc.).

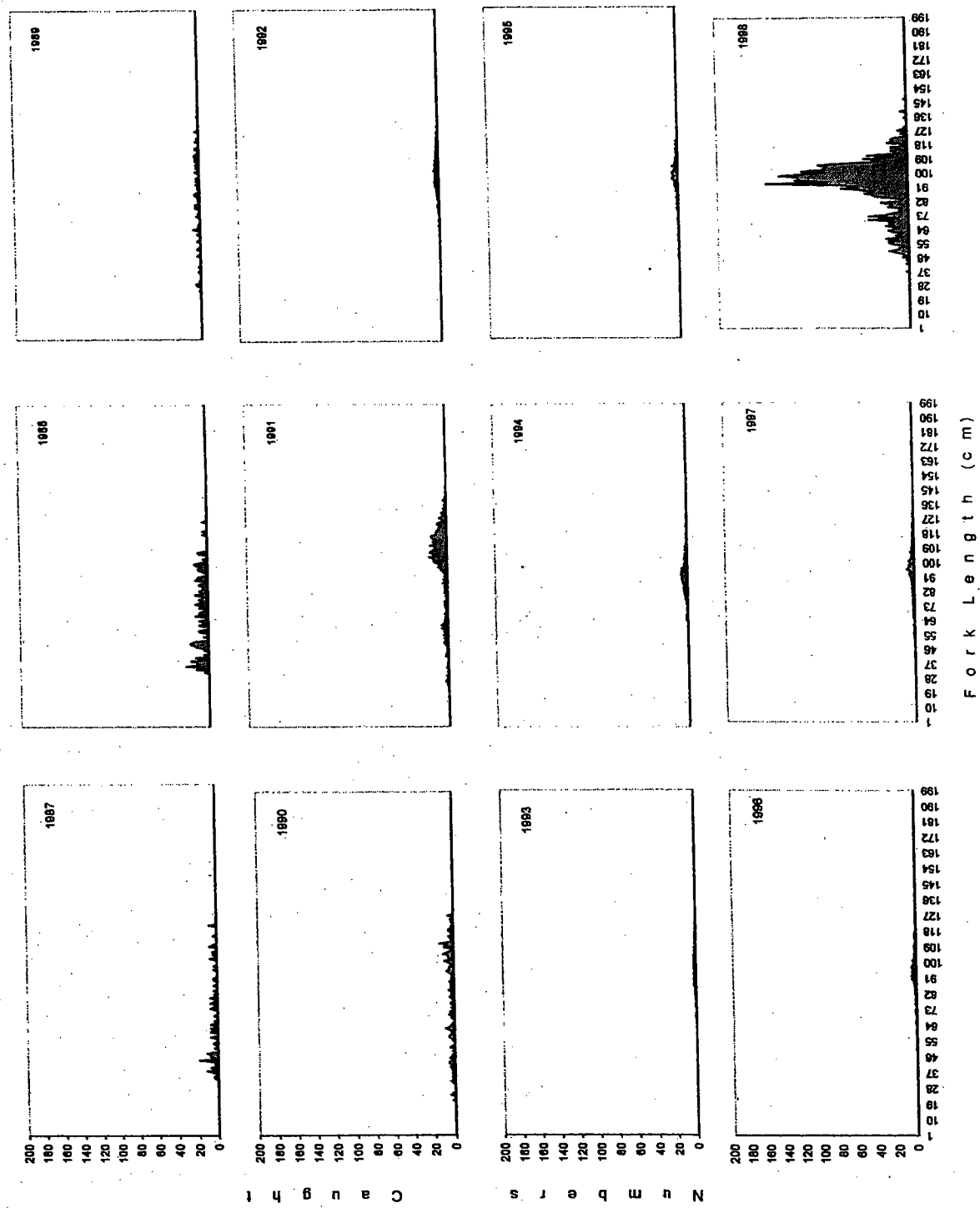


Figure 15a. Estimated total landed catch at length for the Atlantic greater amberjack for the recreational charterboat fishery.

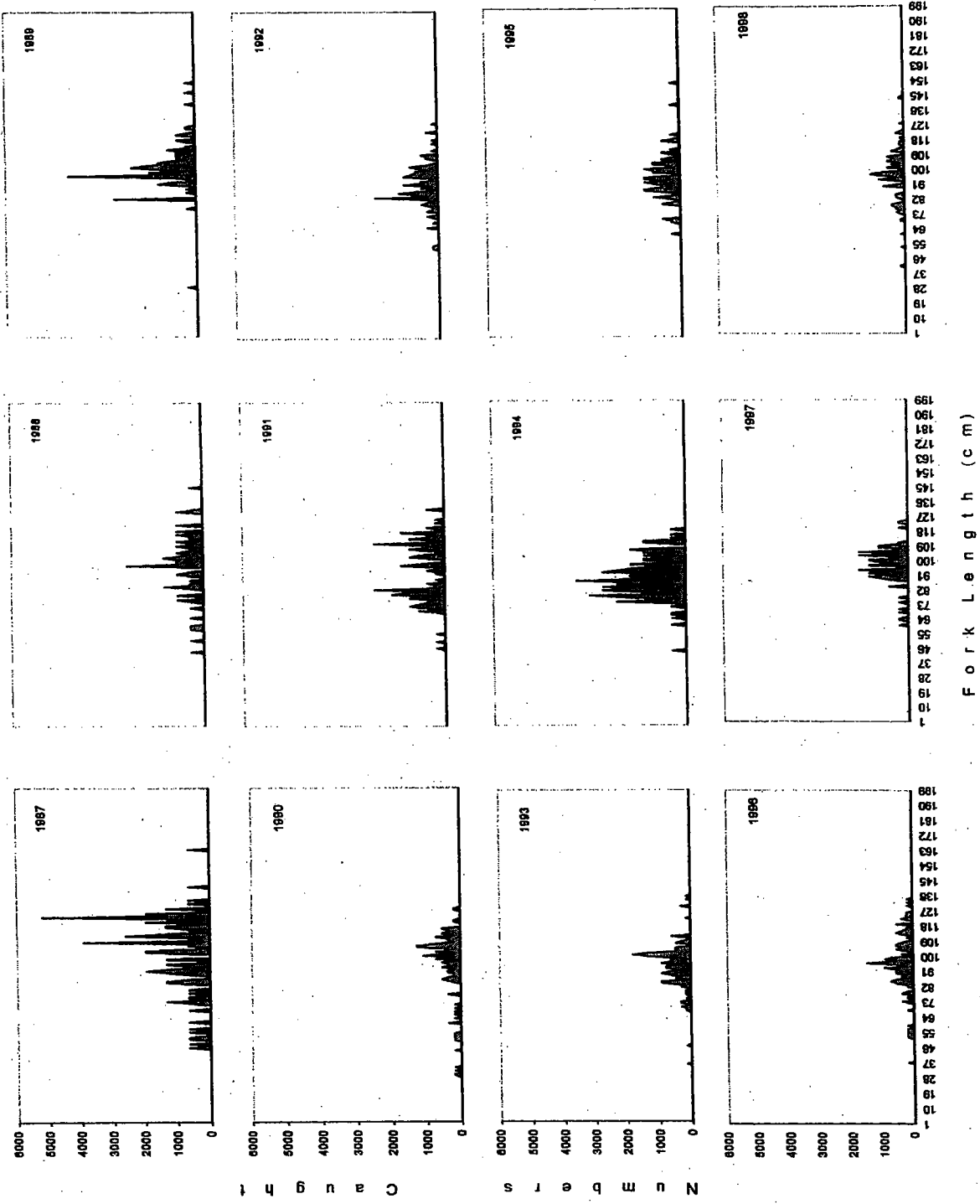


Figure 15b. Estimated total landed catch at length for the Atlantic greater amberjack for the recreational private boat fishery.

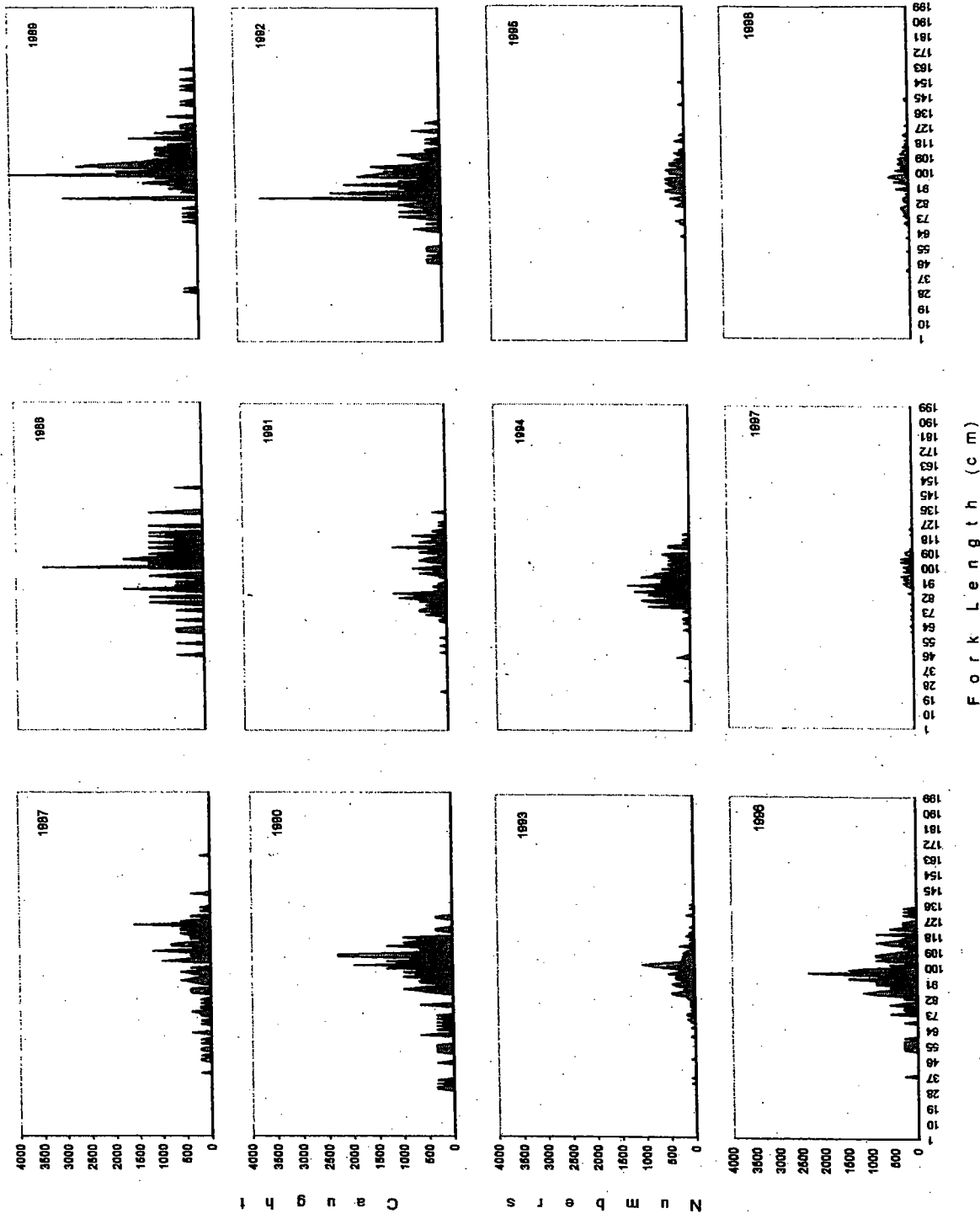
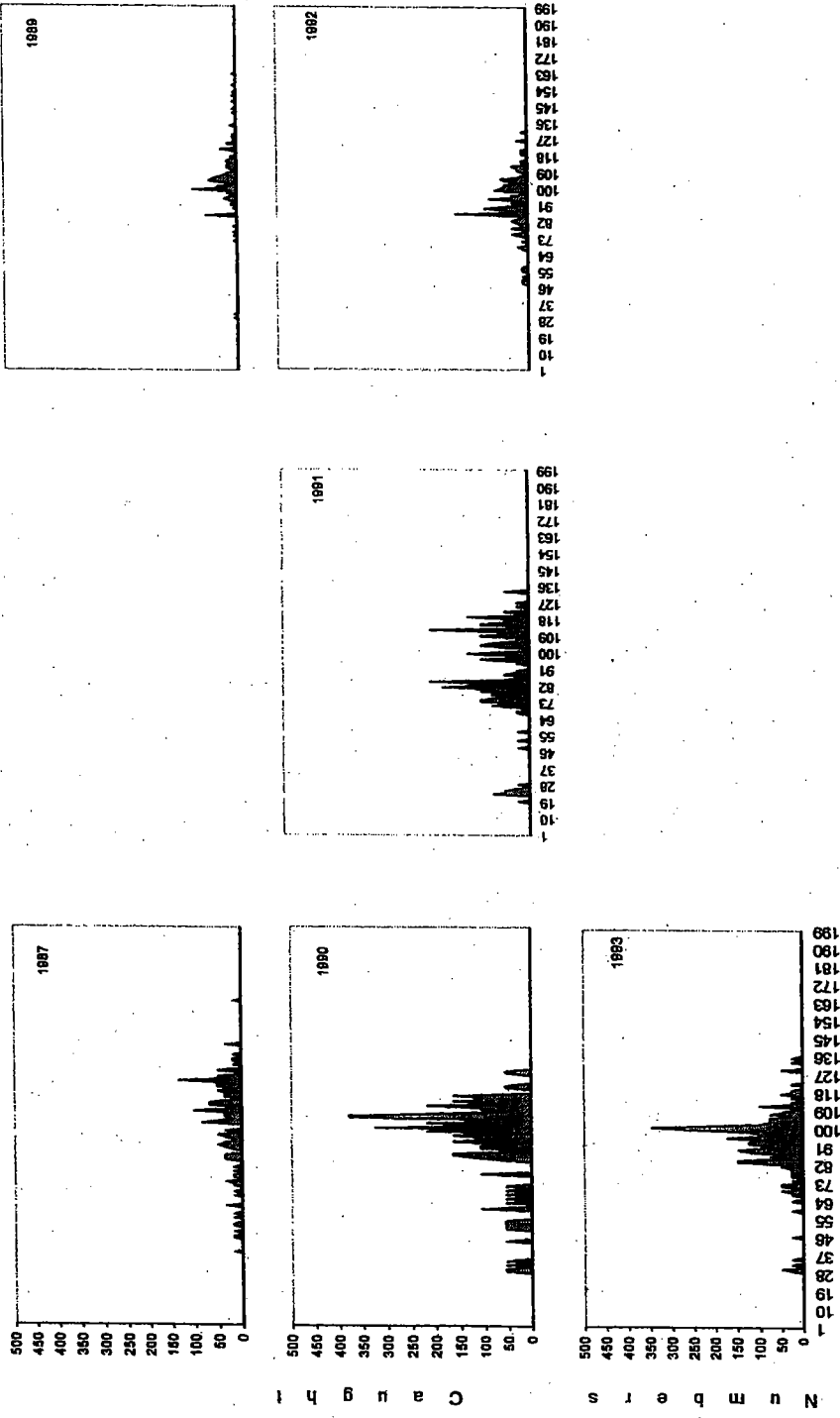


Figure 15c. Estimated total landed catch at length for the Atlantic greater amberjack for the recreational shore fishery.



Fork Length (cm)

Figure 16. Estimated total landed catch at length for the Atlantic greater amberjack for the recreational headboat fishery.

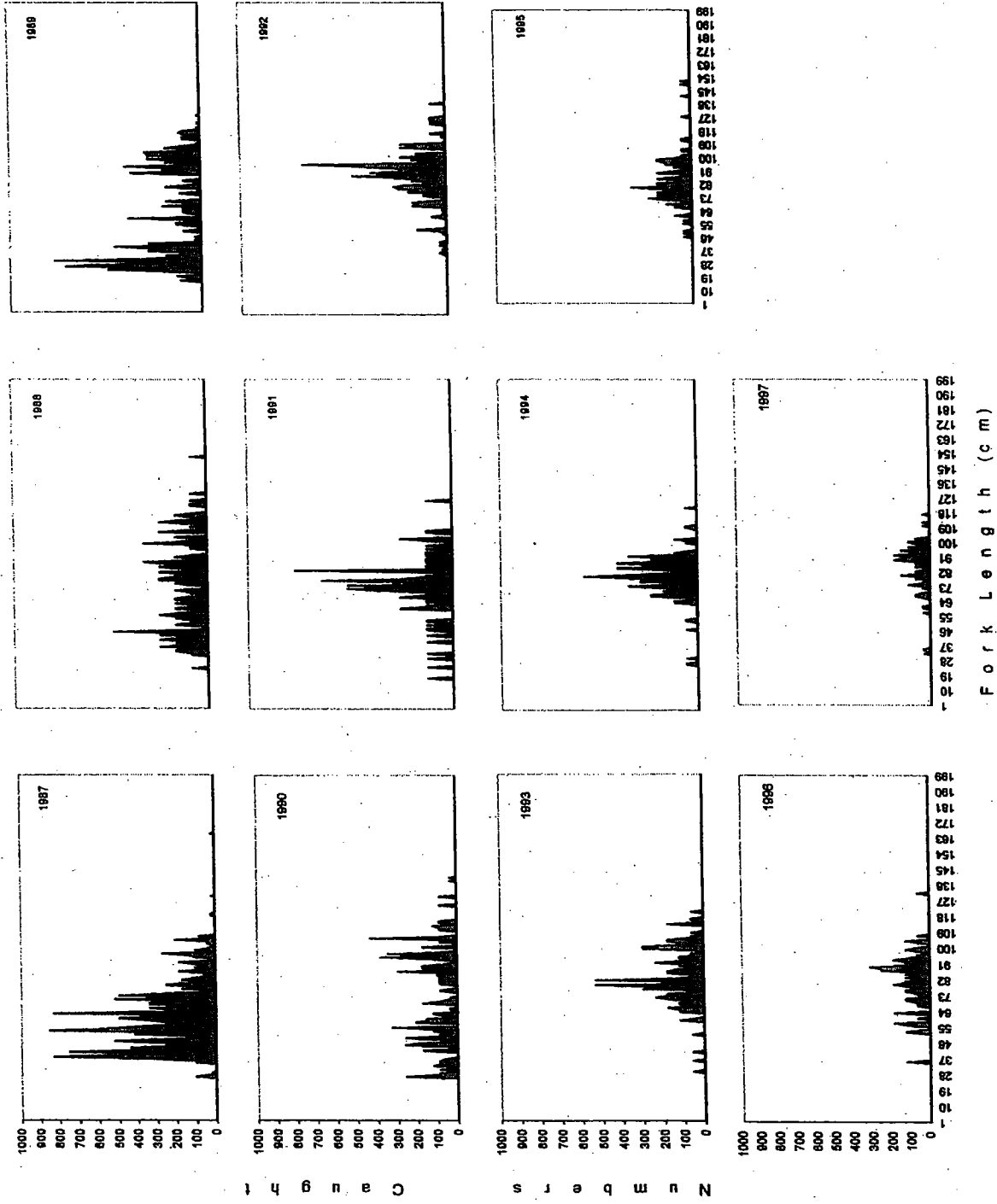


Figure 17. Total estimated ^{landed} catch (numbers of fish) of the Atlantic greater amberjack by fishery and fishing year

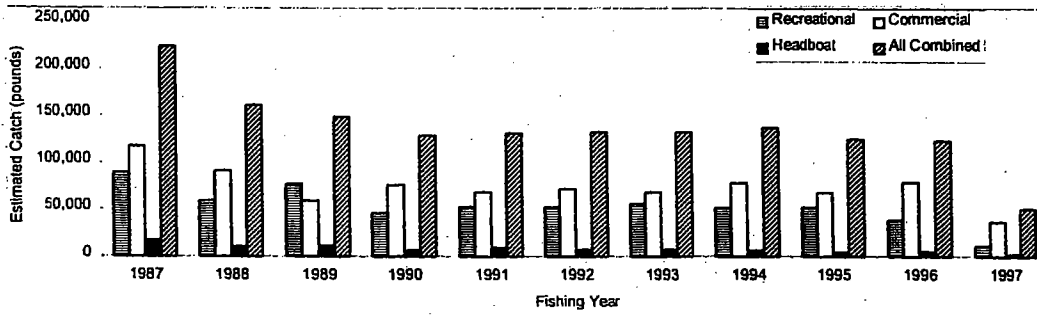


Figure 18. Total estimated landed yield (pounds) for the Atlantic greater amberjack by fishery and fishing year

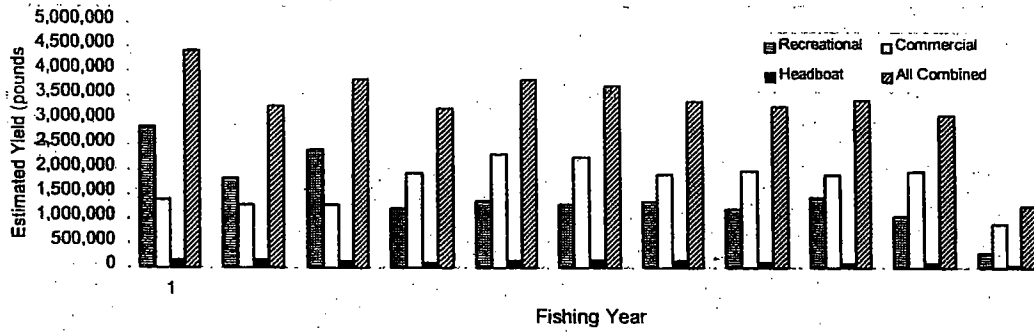


Figure 19a. Frequency of catch per angler for the charterboat fishery by fishing year.

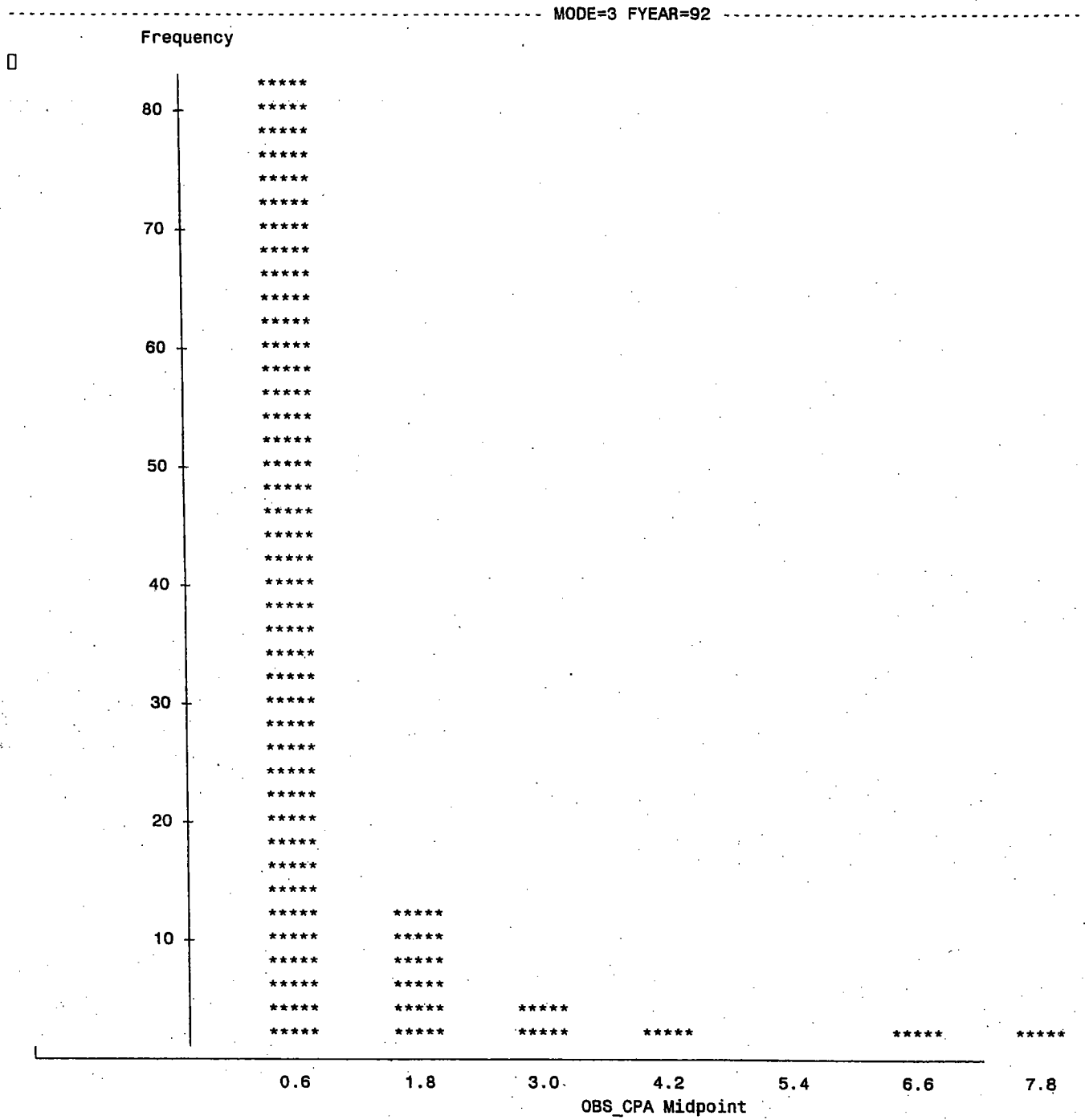


Figure 19a (cont.)

MODE=3 FYEAR=93

□

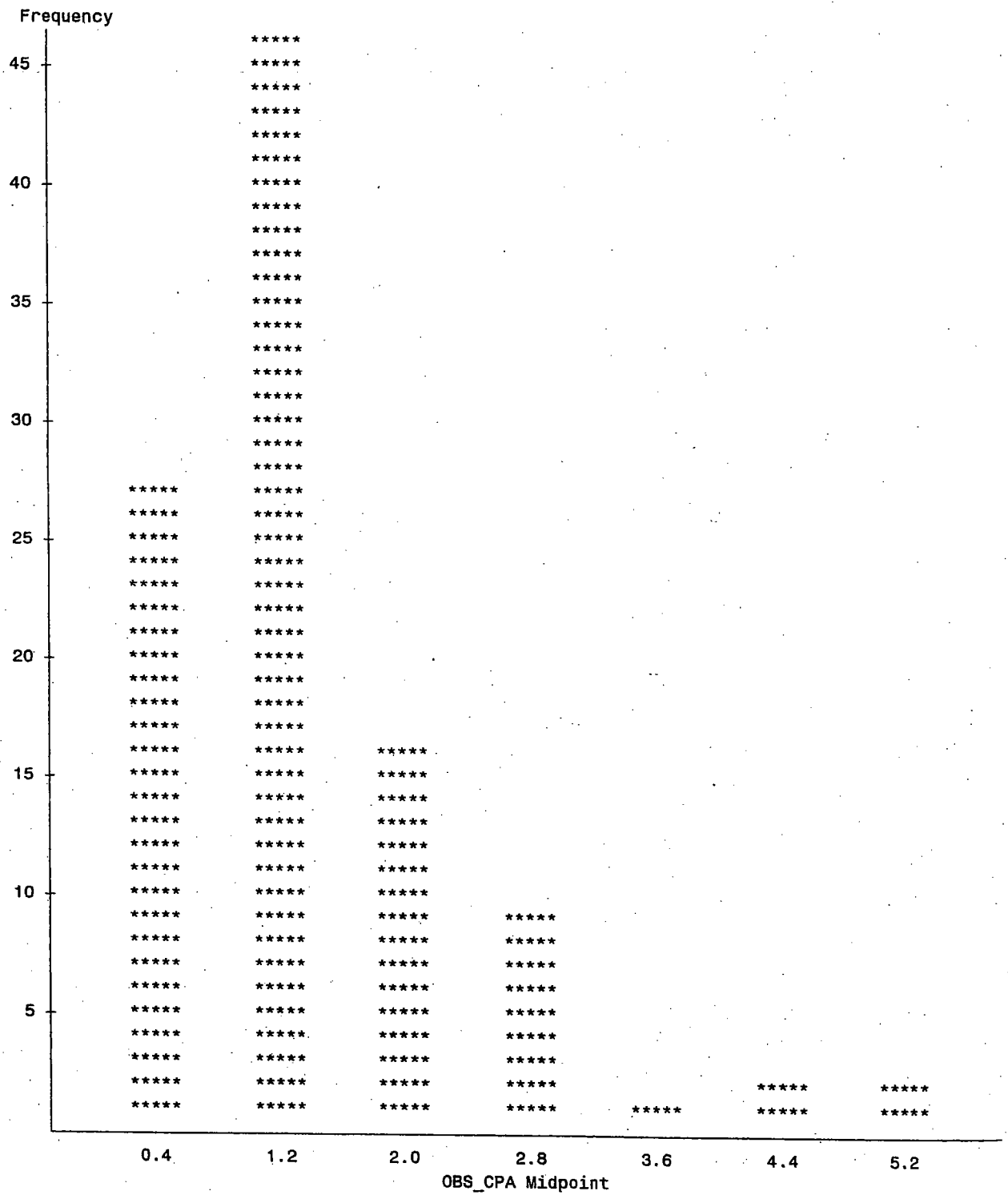


Figure 19a. (cont.)

MODE=3 FYEAR=94

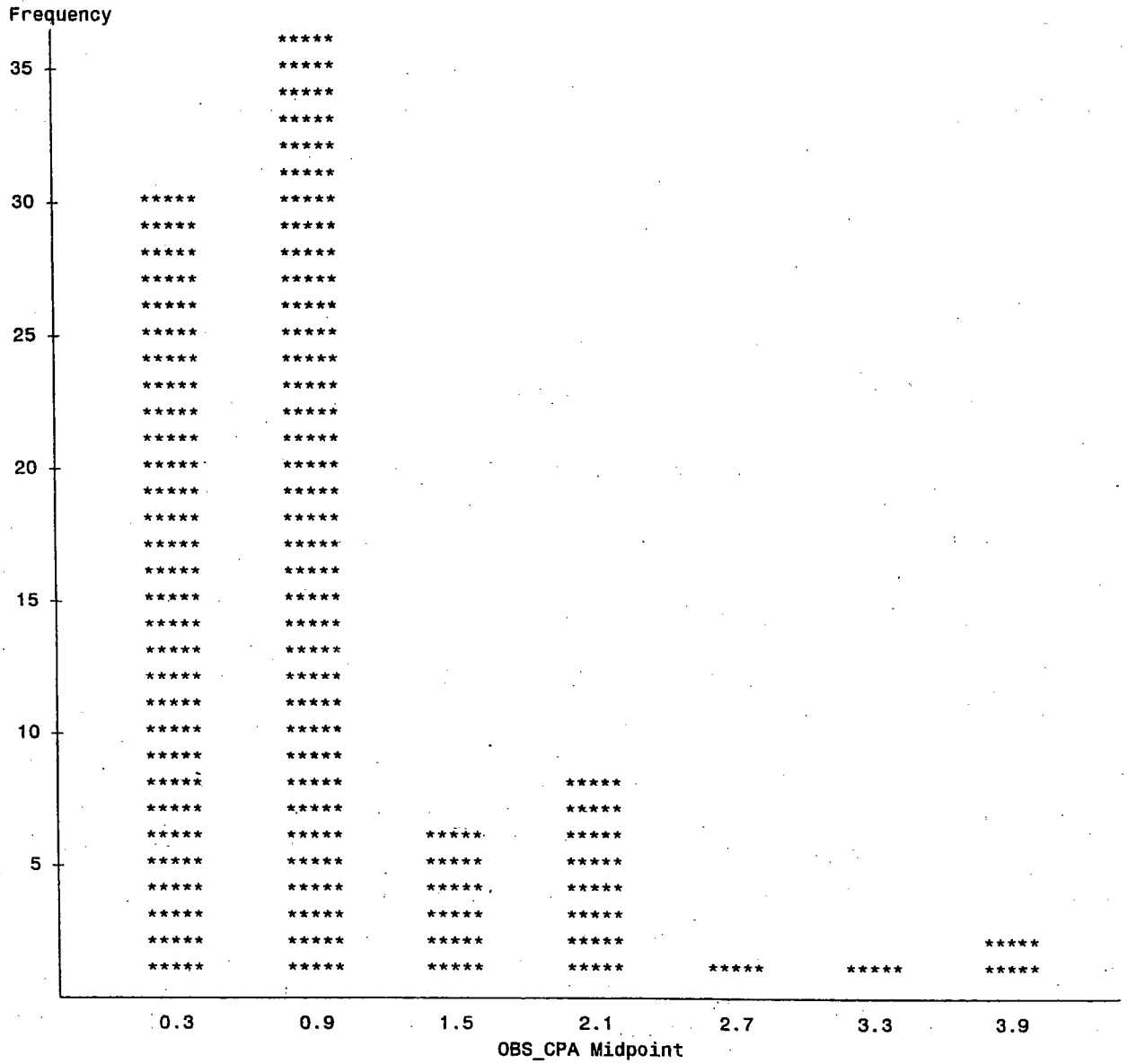


Figure 19a (Cont.)

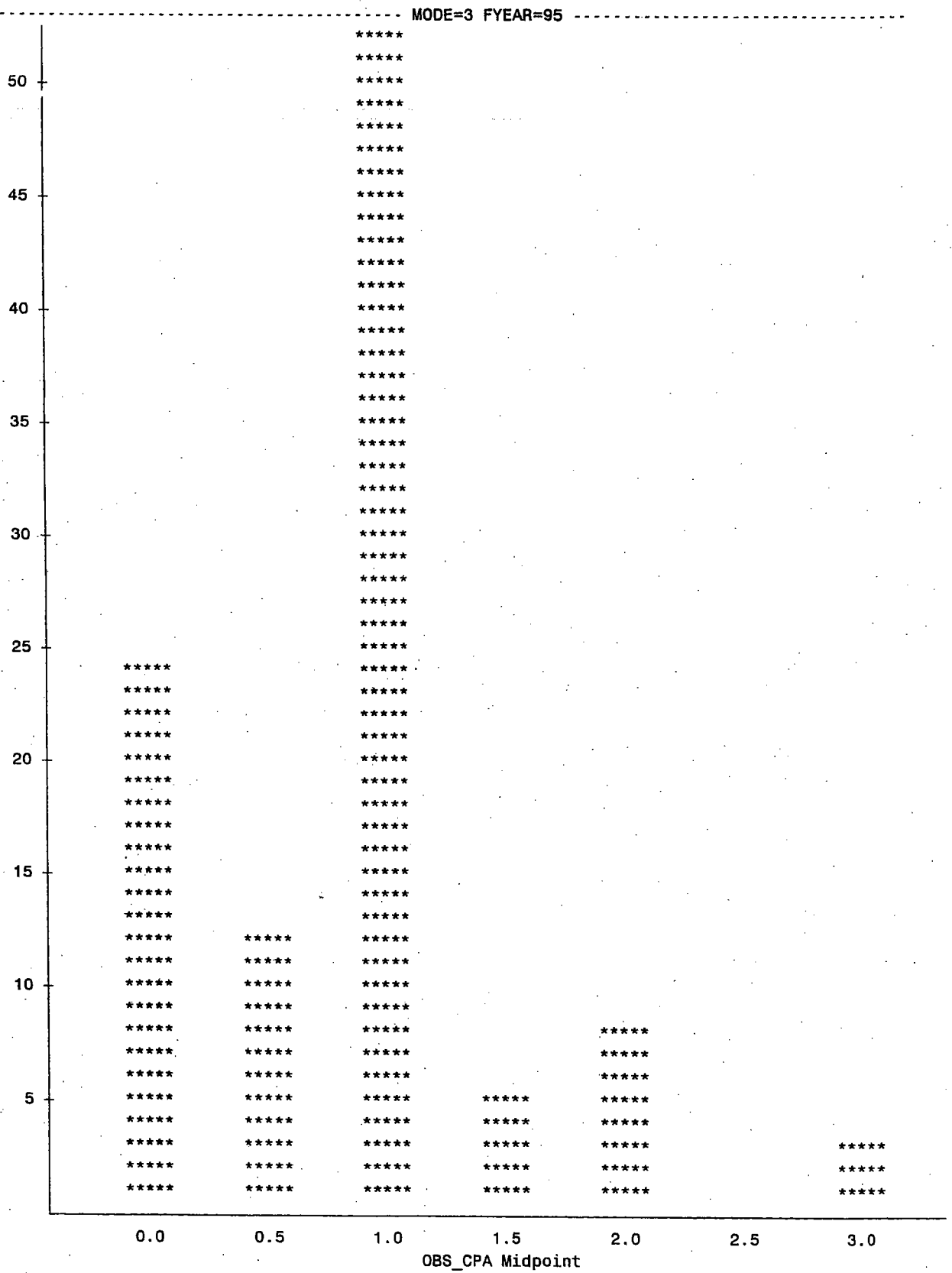


Figure 19a (Cont.)

MODE=3 FYEAR=96

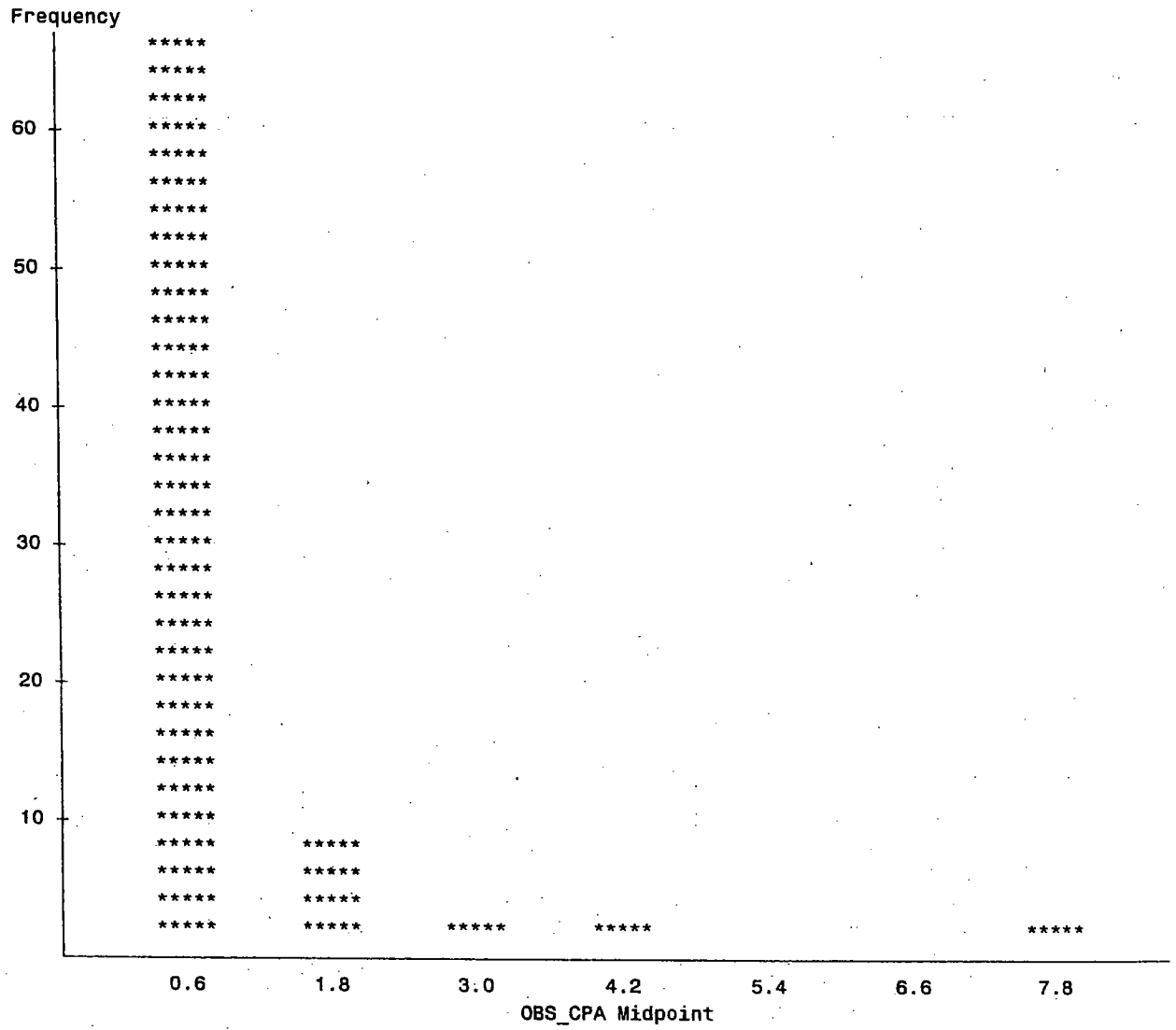


Figure 19a (Cont.)

MODE=3 FYEAR=97

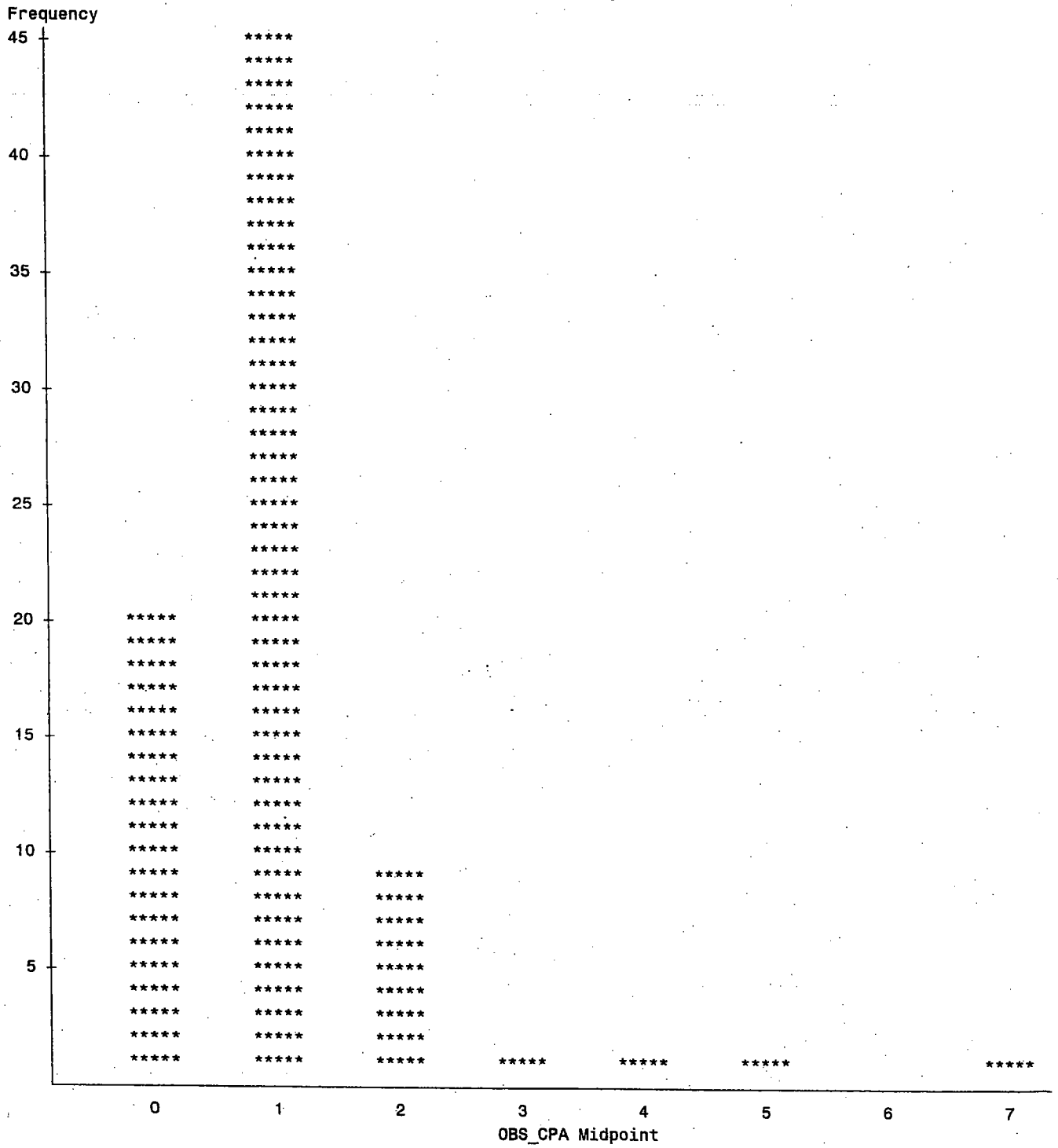


Figure 19b. Frequency of Catch per angle for the private fishery by fishing year.

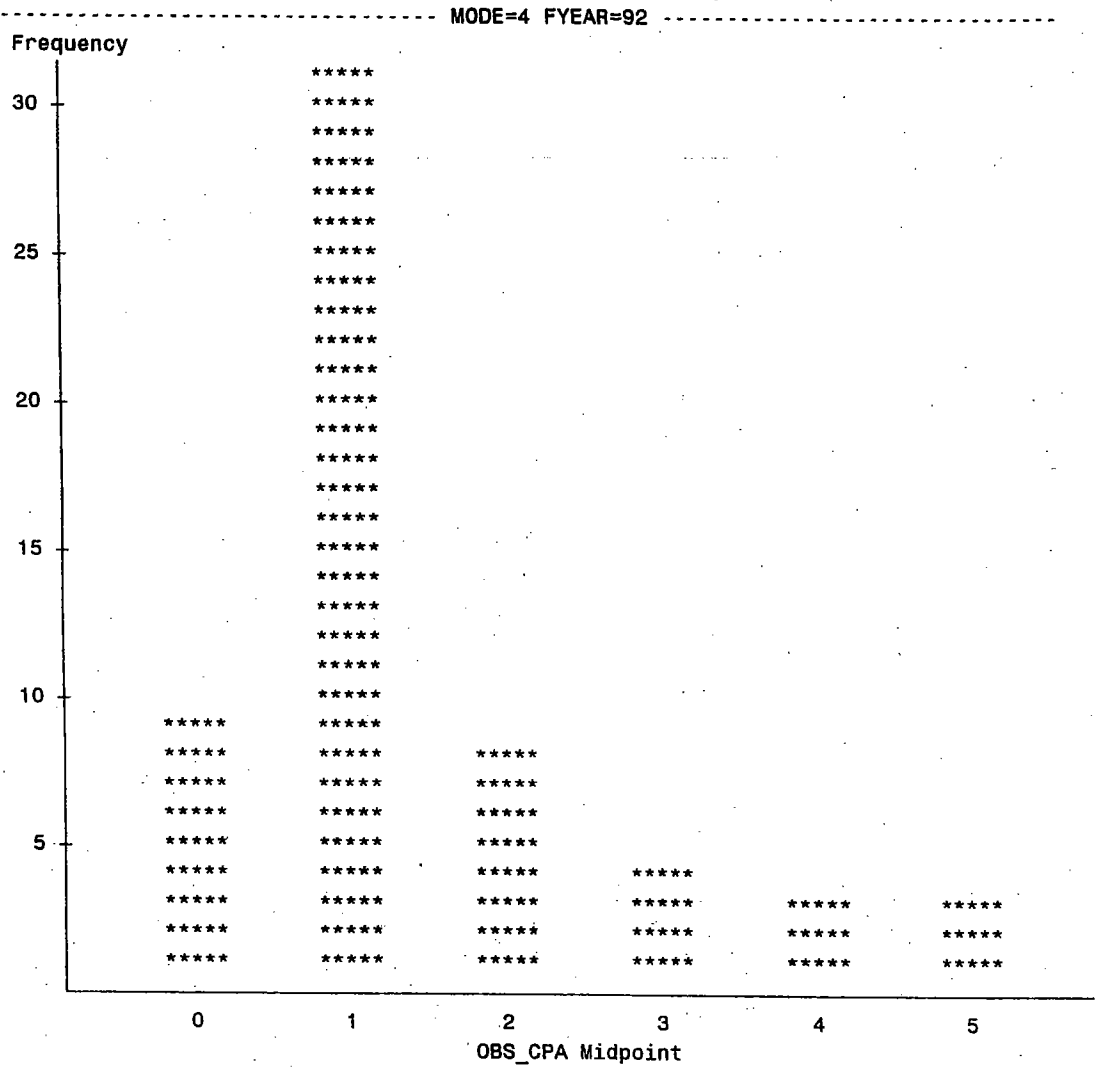
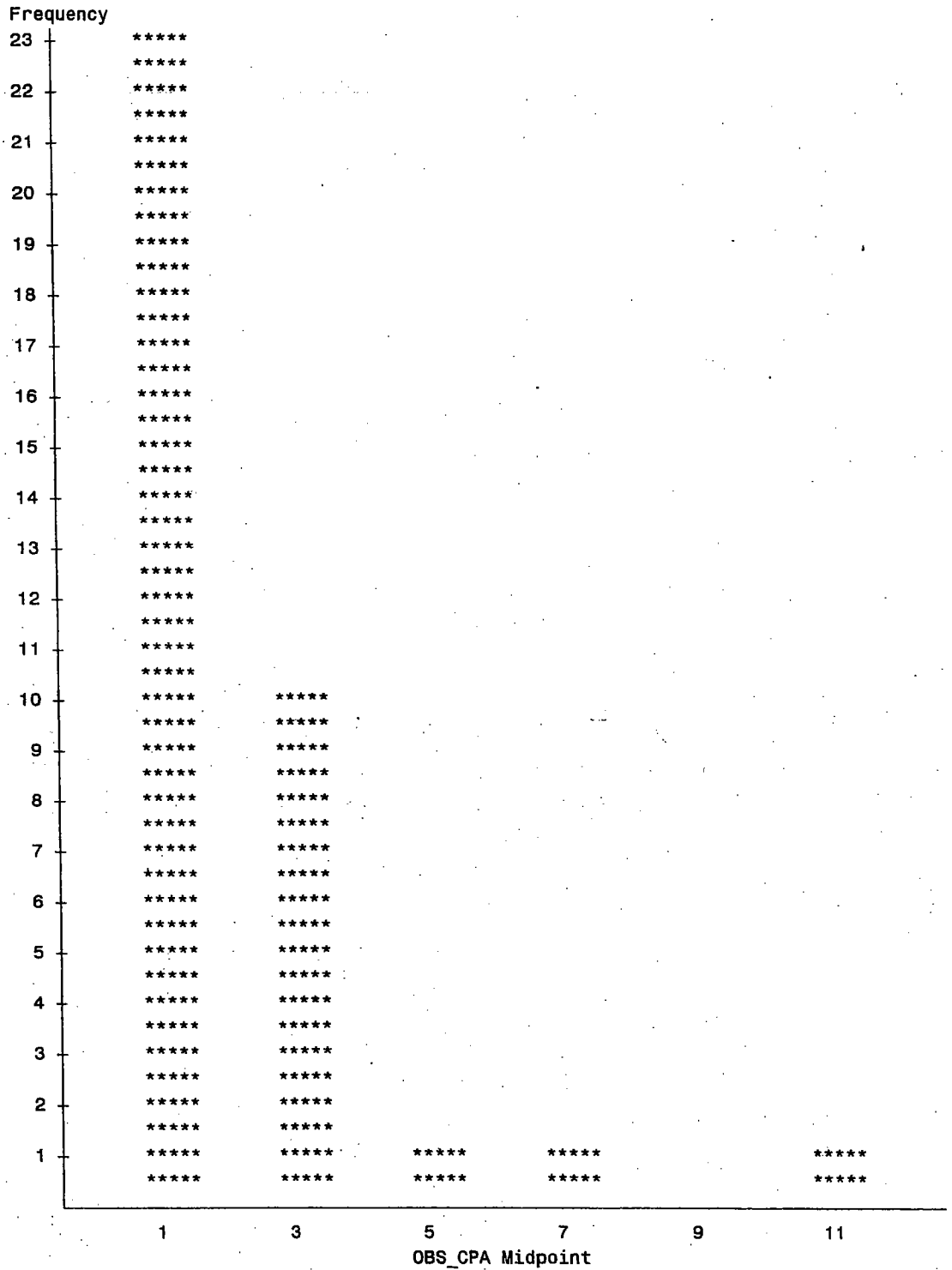


Figure 19b.(Cont.)

MODE=4 FYEAR=93



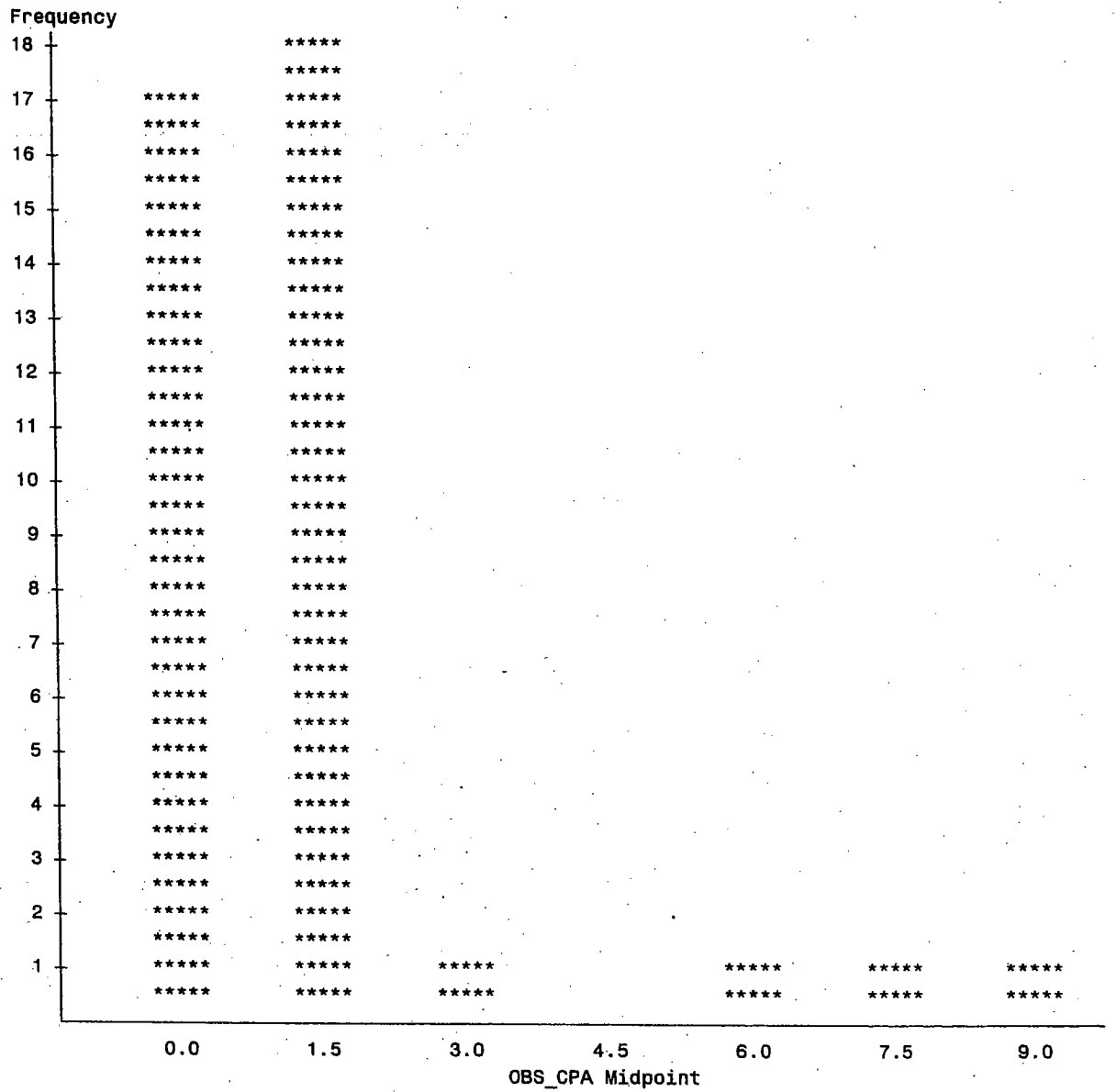


Figure 19b. (Cont.)

MODE=4 FYEAR=95

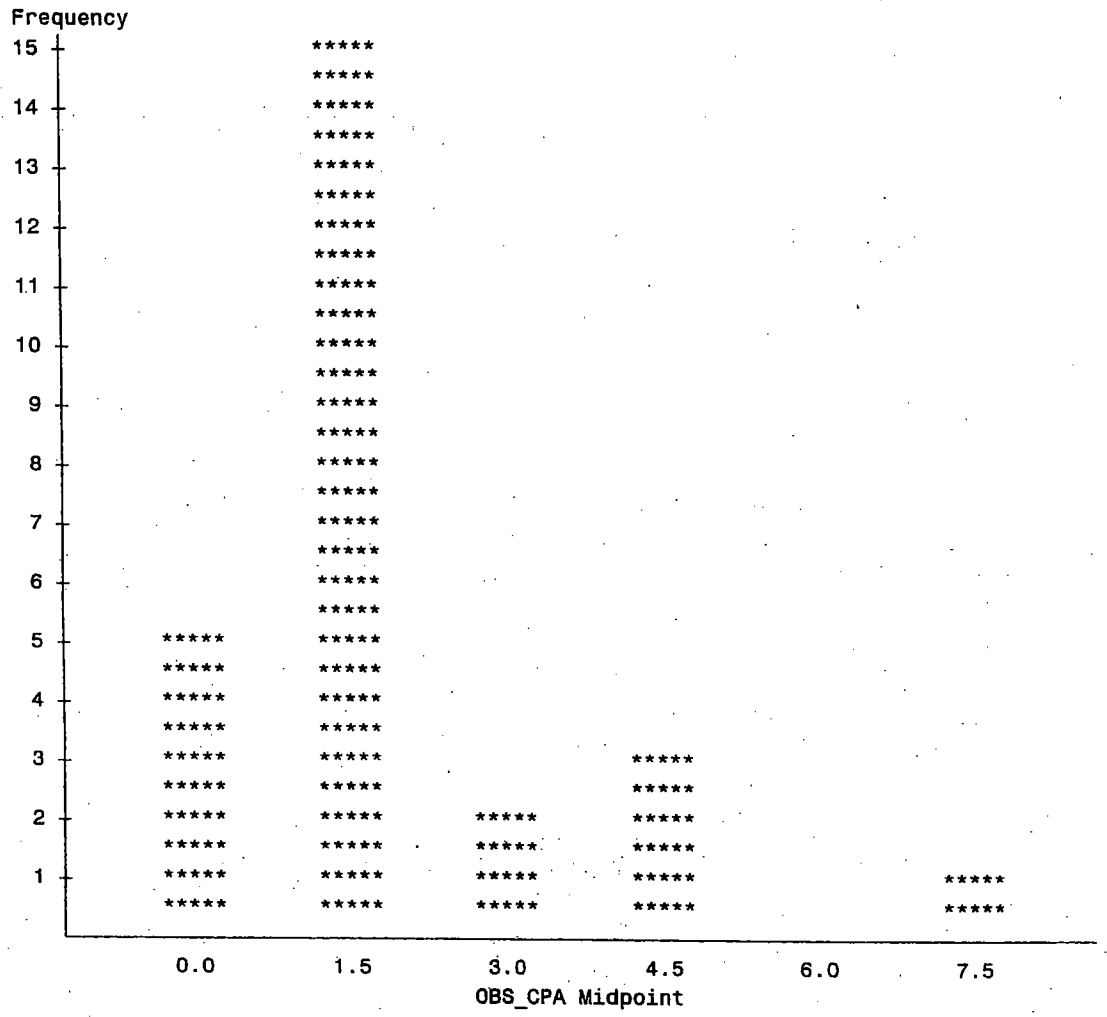


Figure 19b (cont.)

MODE=4 FYEAR=96

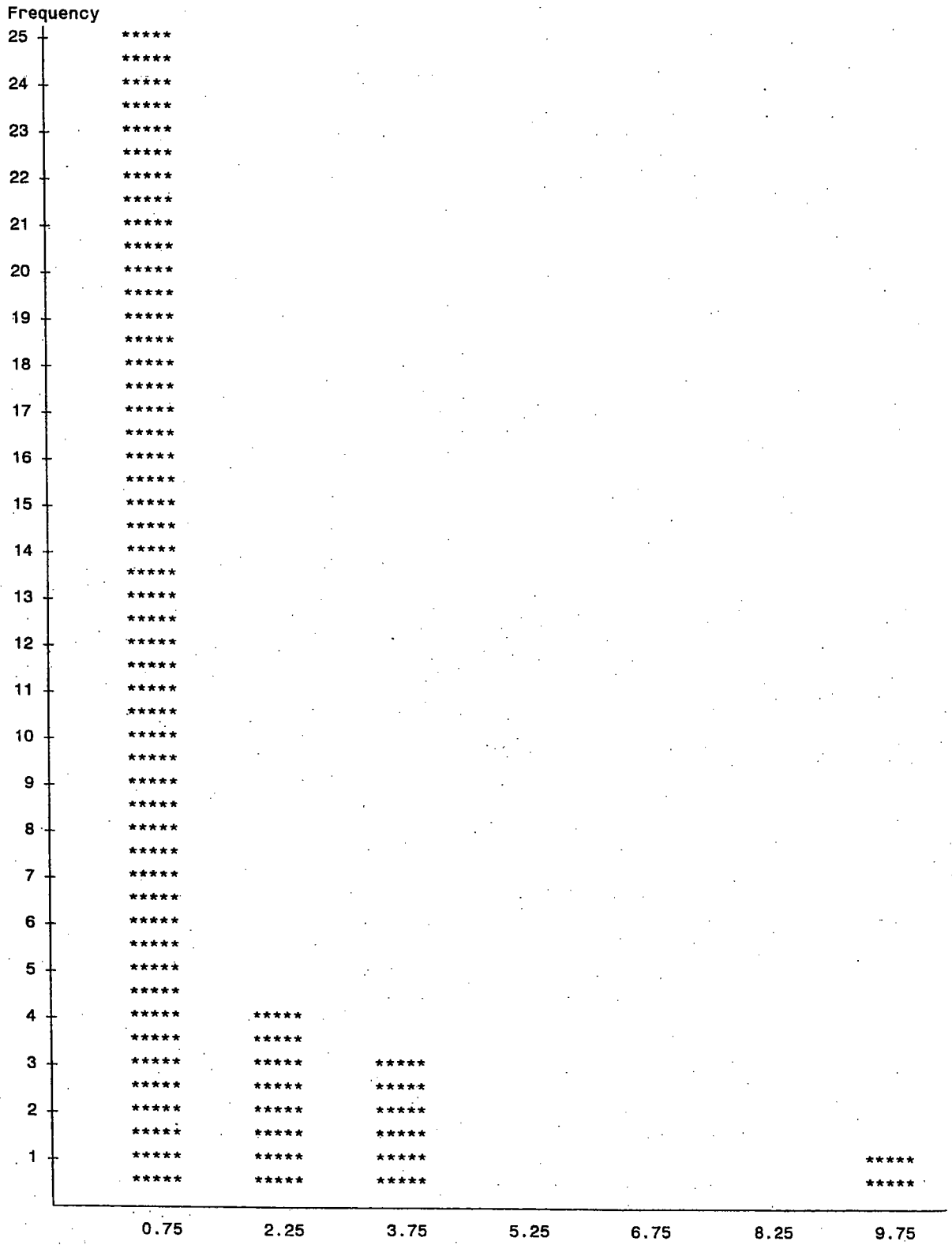


Figure 19b. (Cont.)

MODE=4 FYEAR=97

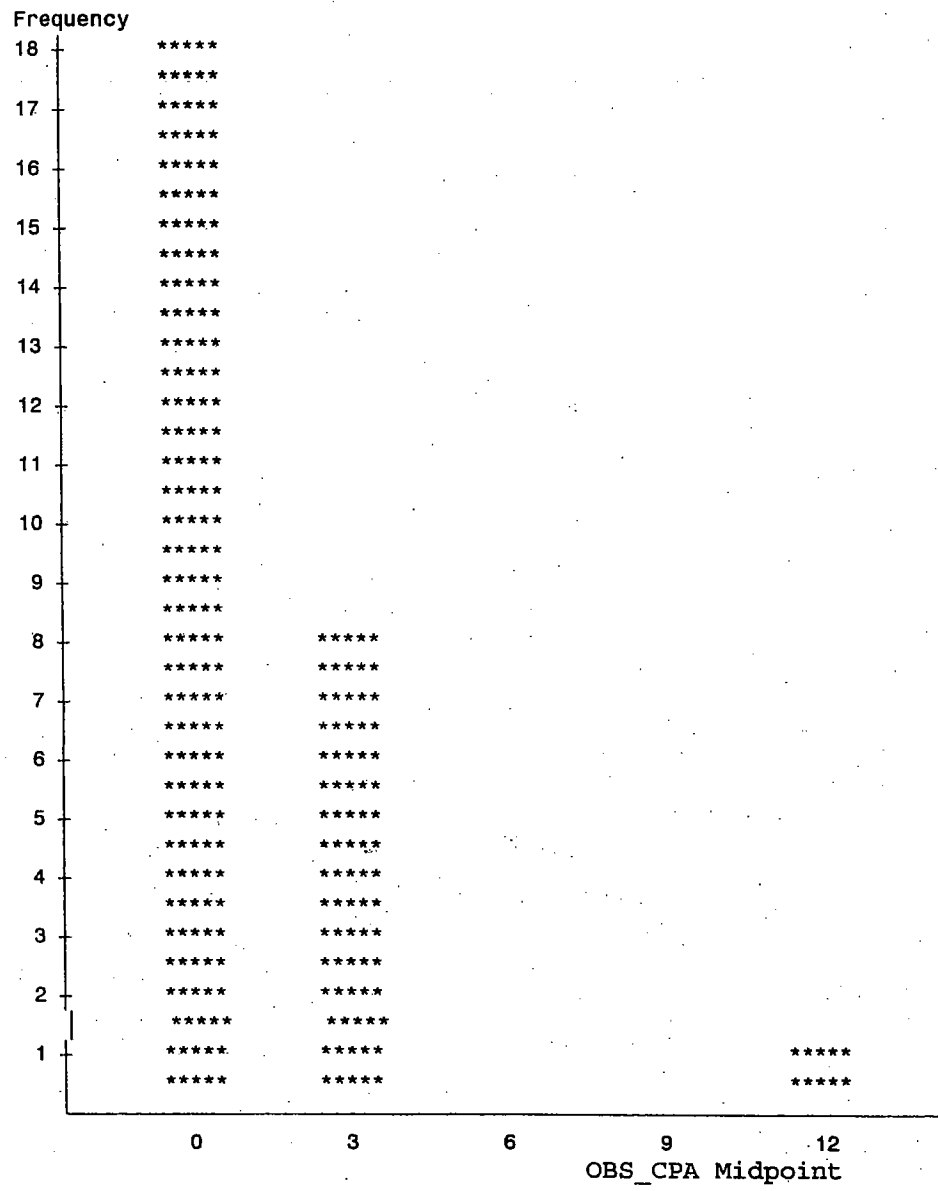


Figure 20a. Estimated total landed and discarded catch at age for the Atlantic greater amberjack stock from the commercial fisheries.

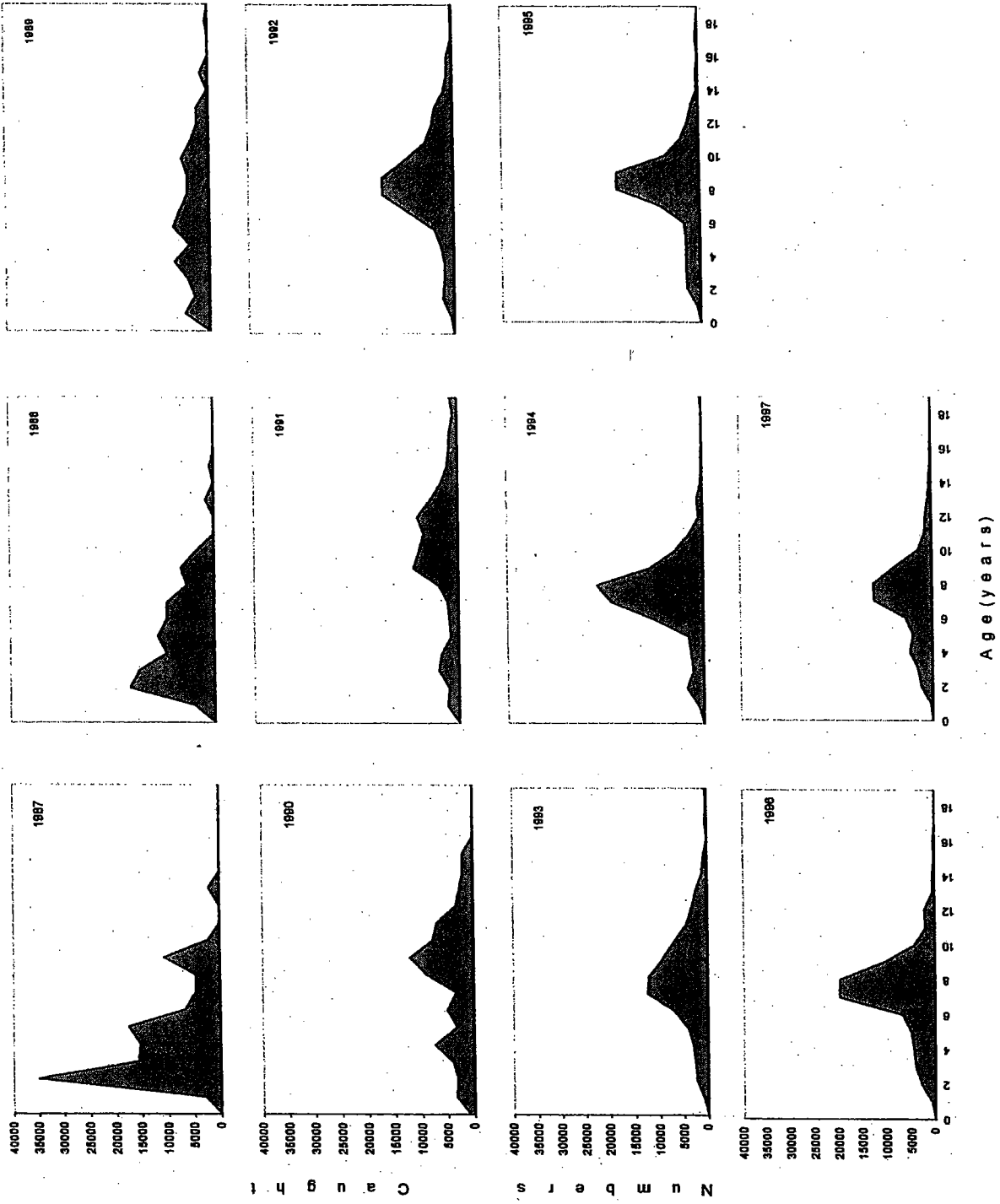


Figure 20b. Estimated total landed and discarded catch at age for the Atlantic greater amberjack stock from the recreational fisheries.

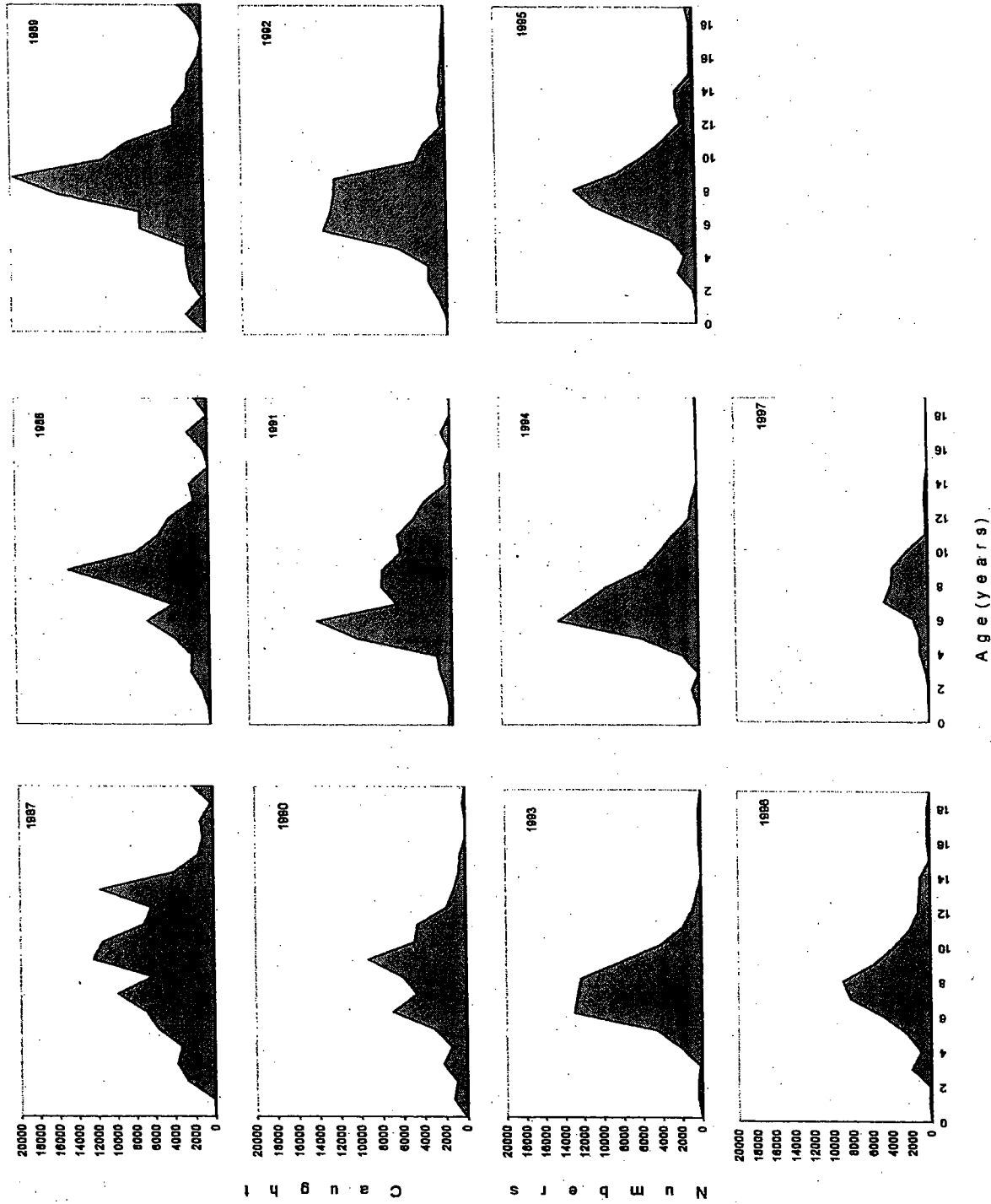


Figure 20c. Estimated total landed and discarded catch at age for the Atlantic greater amberjack stock from the headboat fisheries.

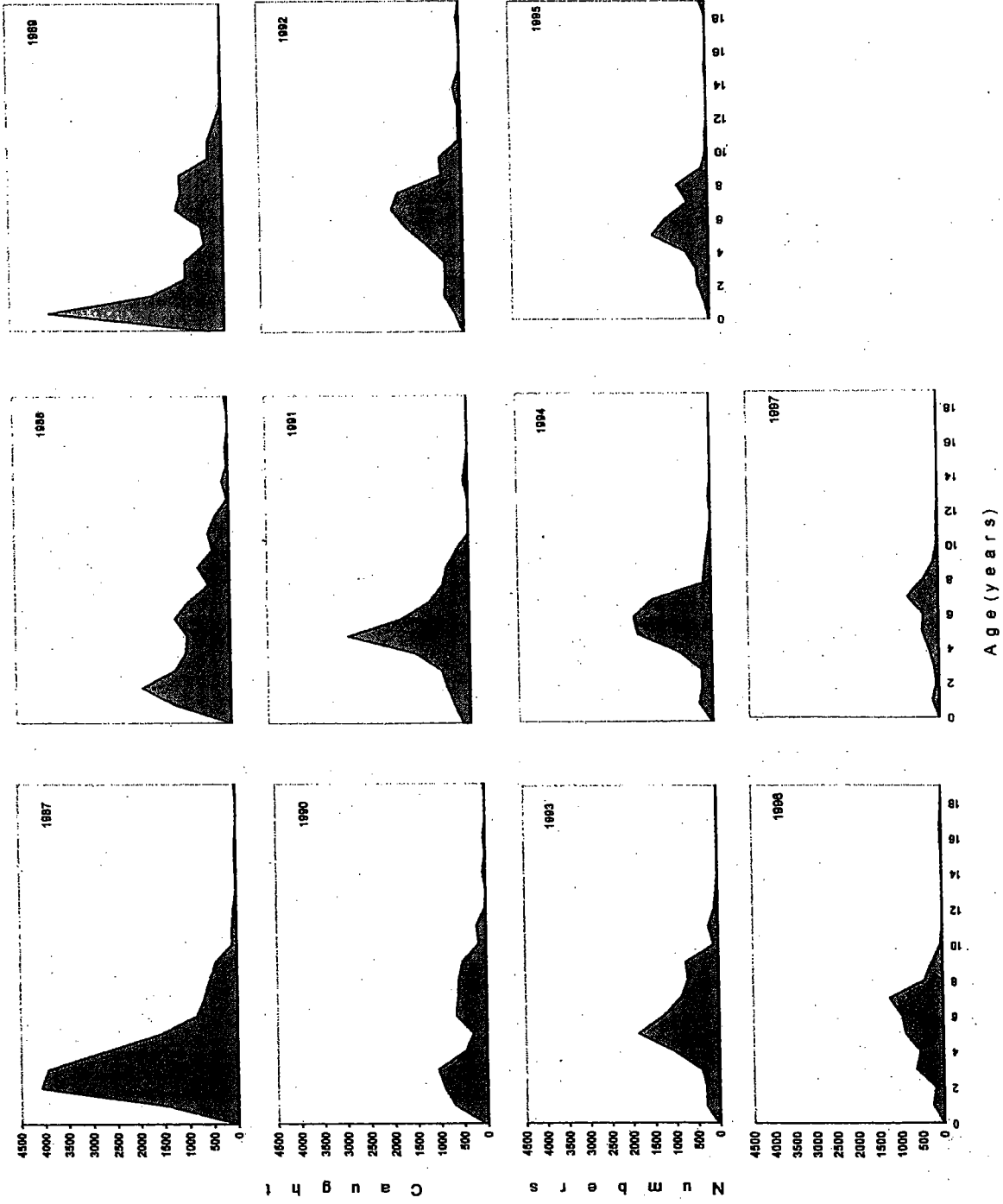


Figure 20d. Estimated total landed and discarded catch at age for the Atlantic greater amberjack stock from the commercial, MRFSS recreational, and headboat fisheries combined.

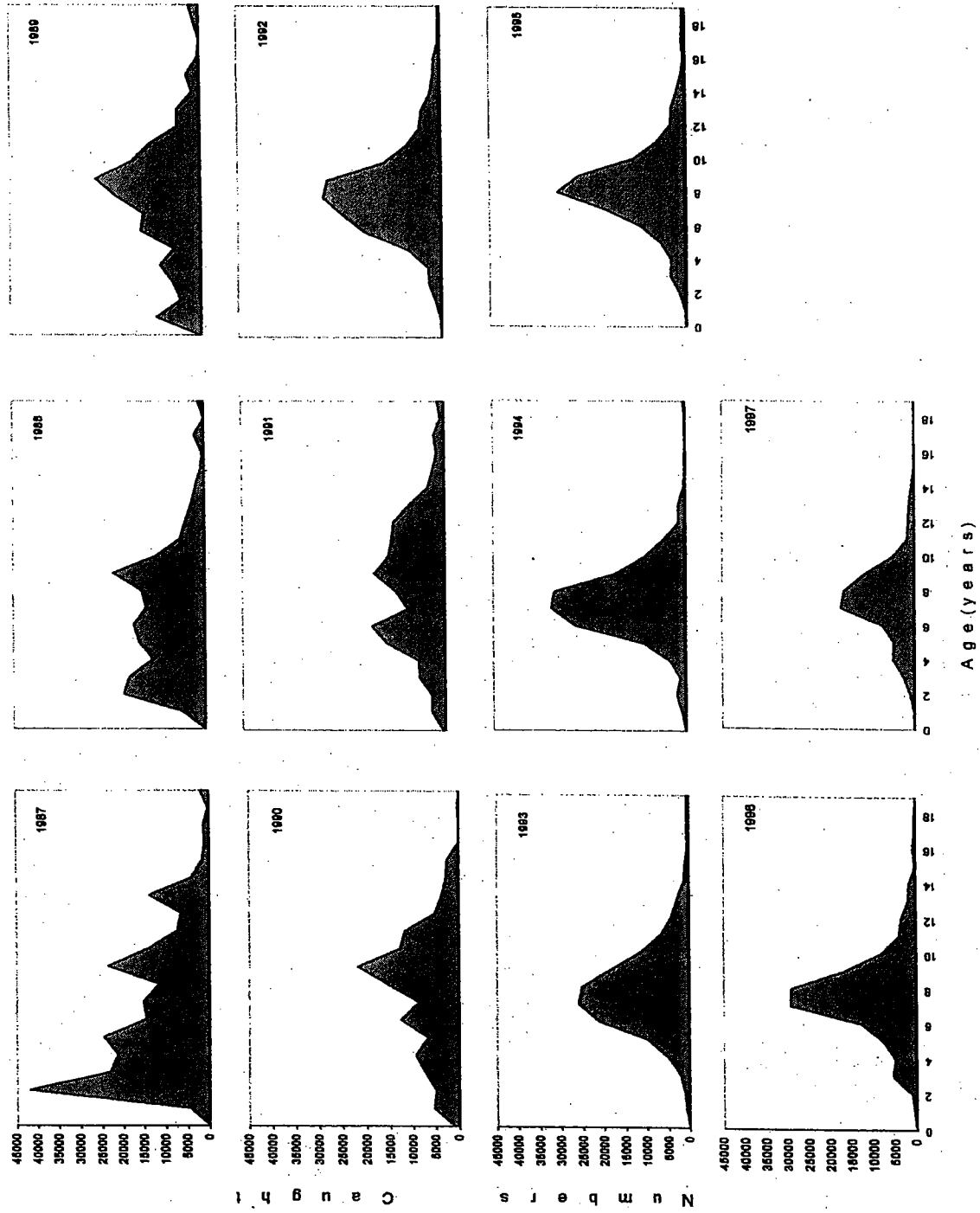
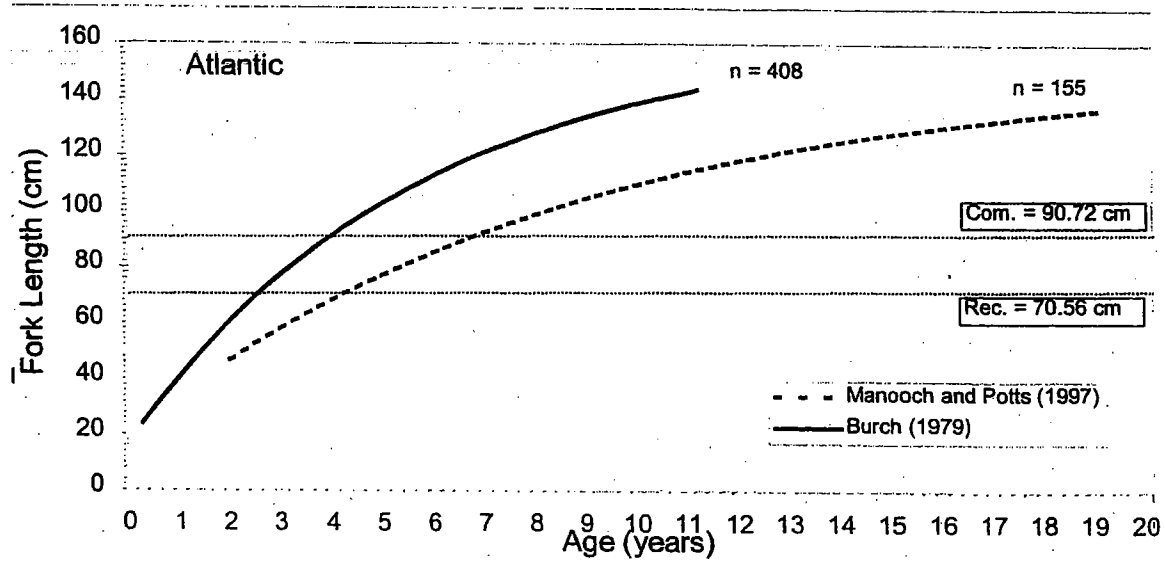


Figure 21. Estimated length at age for greater amberjack from the a) Atlantic Ocean and the b) Gulf of Mexico. Commercial and recreational size limit information included in legend

a)



b)

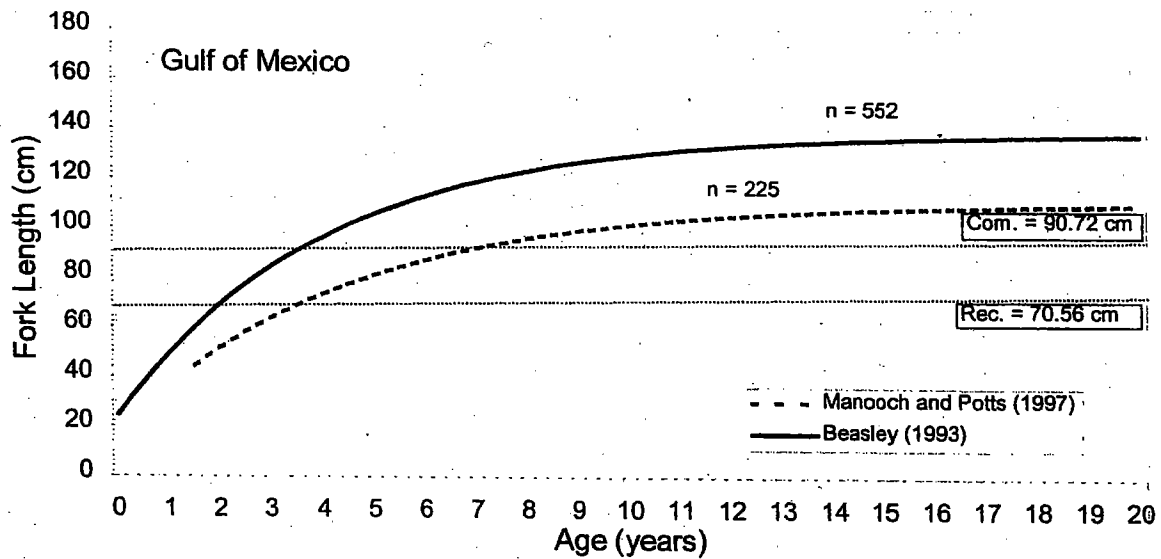
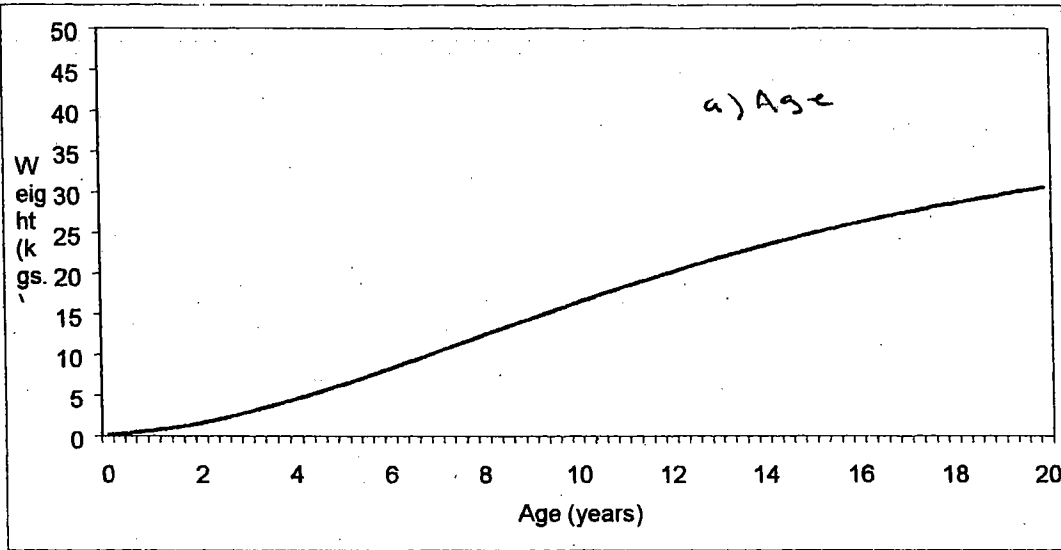
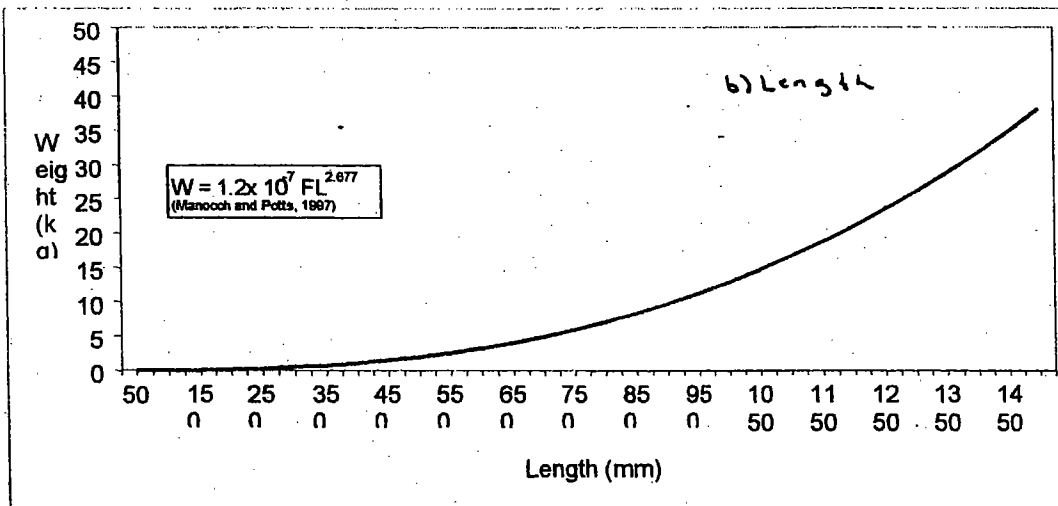


Figure 22. Estimated weight (kgs) for Atlantic greater amberjack by a) age (years) and b) fork length (mm).

a)



b)



Appendix Table 1FY. Reported commercial landings by state and fishing year for Atlantic Ocean greater amberjack in the southeastern United States, 1962-1997. Landings from the Florida Keys are included in the Atlantic stock. The 1997 values are preliminary. Units are whole weight (pounds).

Fishing Year	North Carolina	South Carolina	Georgia	Florida (east)	Florida(inland)	Florida(west)	Total Atlantic	Total Gulf	All
1962				6,344			6,344		6,344
1963				6,032		3,744	6,032	3,744	9,776
1964				7,696		832	7,696	832	8,528
1965				8,736		832	8,736	832	9,568
1966				21,736		1,976	21,736	1,976	23,712
1967				23,192		728	23,192	728	23,920
1968			300	26,624		1,352	26,924	1,352	28,276
1969				15,808		2,496	15,808	2,496	18,304
1970				40,248		5,408	40,248	5,408	45,656
1971				22,776		3,848	22,776	3,848	26,624
1972				11,128			11,128		11,128
1973				35,880		8,632	35,880	8,632	44,512
1974		100		34,216		13,416	34,316	13,416	47,732
1975		0		53,040		7,696	53,040	7,696	60,736
1976		693	2,787	68,016		3,328	71,496	3,328	74,824
1977				64,584		2,704	64,584	2,704	67,288
1978	2,891	1,811		39,104		5,408	43,806	5,408	49,214
1979	6,865	19,620	2,149	33,072		24,960	61,706	24,960	86,666
1980	10,280	19,460	4,697	33,178		13,696	67,615	13,696	81,311
1981	8,793	56,245	2,850	36,717		15,101	104,605	15,101	119,706
1982	3,239	23,208	600	44,859		95,574	71,906	95,574	167,480
1983	5,939	8,731	615	38,869		68,217	54,154	68,217	122,371
1984	4,531	6,826	3,339	93,680		105,277	108,376	105,277	213,653
1985	15,541	16,677	3,672	99,301		60,431	135,191	60,431	195,623
1986	38,861	50,450	10,028	239,367	2,701	172,522	338,706	172,522	513,929
1987	38,530	63,413	6,550	855,569	6,201	427,477	964,062	427,477	1,397,740
1988	71,974	58,057	18,807	625,508		520,356	774,346	520,356	1,294,702
1989	61,644	115,917	16,363	705,403	7,252	390,586	899,327	390,586	1,297,165
1990	105,703	120,354	28,470	690,235	1,179	986,497	944,762	986,497	1,932,438
1991	109,386	152,062	70,775	811,013	144	1,176,251	1,143,236	1,176,251	2,319,631
1992	122,156	125,456	62,709	939,182	520	998,894	1,249,503	998,894	2,248,917
1993	128,807	179,018	89,048	746,443	435	755,066	1,143,316	755,066	1,898,817
1994	148,096	142,817	90,635	967,036		616,146	1,348,584	616,146	1,964,730
1995	171,467	133,416	48,216	762,368	433	774,919	1,115,467	774,919	1,890,819
1996	127,967	153,537	37,656	866,544	915	771,186	1,185,704	771,186	1,957,805
1997	168,578	216,669	29,672	553,371		418,222	968,290	418,222	1,386,512

Appendix Table 2FY. Estimated recreational catches of the Atlantic Ocean greater amberjack for the southeastern United States by fishery, state, and fishing year, 1981-1998. Values for 1998 are preliminary. Units are number of fish. MRFSS includes Monroe county recreational catches (i.e., Florida Keys) in the Florida West Coast catch estimates; MRFSS estimates in this table only include catches from Florida East Coast.

Fishing Year	Fishery	FL	GA	SC	NC	All states
1981	Shore	5,807				5,807
	Charter/Hbt	9,510		72	3,410	12,992
	All modes	15,317		72	3,410	18,799
1982	Private	15,450	815		582	16,847
	Charter/Hbt	4,521				4,521
	All modes	19,971	815		582	21,368
1983	Private	10,016				10,016
	Charter/Hbt	7,714			769	8,483
	All modes	17,730			769	18,499
1984	Private	34,900	1,077	6,540		42,517
	Charter/Hbt	22,115	435	3,285	2,318	28,153
	All modes	57,015	1,512	9,825	2,318	70,670
1985	Headboat	1,775				1,775
	Charter	3,307				3,307
	Private	2,548	551	12,126	8,580	23,805
	Charter/Hbt	15,627	967			16,594
	All modes	23,257	1,518	12,126	8,580	45,481
1986	Shore			4,253		4,253
	Headboat	10,432		1,906	933	13,271
	Charter	14,147	489	719	28,045	43,400
	Private	18,702		10,177	4,307	33,186
	All modes	43,281	489	17,055	33,285	94,110
1987	Shore				1,997	1,997
	Headboat	11,794		3,744	1,149	16,687
	Charter	51,347	729	1,053	684	53,813
	Private	28,444	503		6,696	33,643
	All modes	89,585	1,232	4,797	10,526	106,140
1988	Shore				355	355
	Headboat	7,447		2,093	996	10,536
	Charter	21,155		15,620	1,177	37,952
	Private	10,030	2,855	704	7,229	20,818
	All modes	38,632	2,855	18,417	9,757	69,661
1989	Shore				516	516
	Headboat	8,547		1,754	1,340	11,641
	Charter	15,696		2,366	1,156	19,218
	Private	54,397		1,467	2,002	57,866
	All modes	78,640		5,587	5,014	89,241

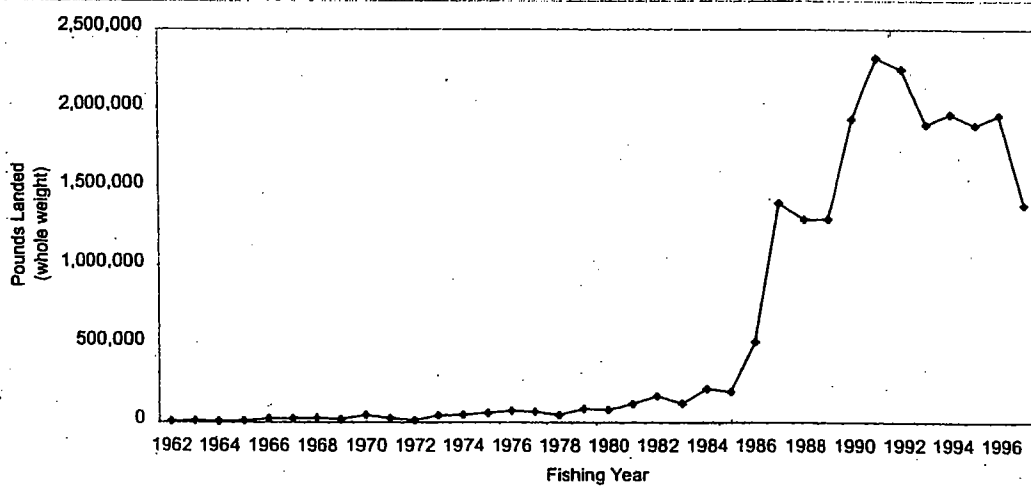
Appendix Table 2FY (cont.).

Fishing Year	Fishery	FLE	GA	SC	NC	All states
1990	Shore	5,042			701	5,743
	Headboat	2,635		2,543	1,210	6,388
	Charter	24,090		538	1,455	26,083
	Private	2,882	1,823	6,004	3,864	14,573
	All modes	34,649	1,823	9,085	7,230	52,787
1991	Shore	1,448			3,521	4,969
	Headboat	3,879		3,800	1,832	9,511
	Charter	23,454	472	475	1,152	25,553
	Private	16,433		3,963	1,810	22,206
	All modes	45,214	472	8,238	8,315	62,239
1992	Shore					
	Headboat	4,557		1,237	1,529	7,323
	Charter	17,591	1,838	1,931	851	22,211
	Private	27,734	188	1,314	1,376	30,612
	All modes	49,882	2,026	4,482	3,756	60,146
1993	Shore	4,093				4,093
	Headboat	4,715		1,858	835	7,408
	Charter	36,358		468	2,901	39,727
	Private	5,697			6,734	12,431
	All modes	50,863		2,326	10,470	63,659
1994	Shore					
	Headboat	3,728	124	2,032	587	6,471
	Charter	22,667	4,567		3,300	30,534
	Private	17,481		1,893	2,297	21,671
	All modes	43,876	4,691	3,925	6,184	58,676
1995	Shore					
	Headboat	2,058	224	1,655	695	4,632
	Charter	25,697	348		2,219	28,264
	Private	19,311	902		3,482	23,695
	All modes	47,066	1,474	1,655	6,396	56,591
1996	Shore					
	Headboat	2,118	317	1,931	779	5,145
	Charter	20,336	1,009	845	3,016	25,206
	Private	5,272	362		8,119	13,753
	All modes	27,726	1,688	2,776	11,914	44,104
1997	Shore					
	Headboat	822	124	1,266	213	2,425
	Charter	7,901	557	1,672	1,191	11,321
	Private	1,463	264	388	1,711	3,826
	All modes	10,186	945	3,326	3,115	17,572

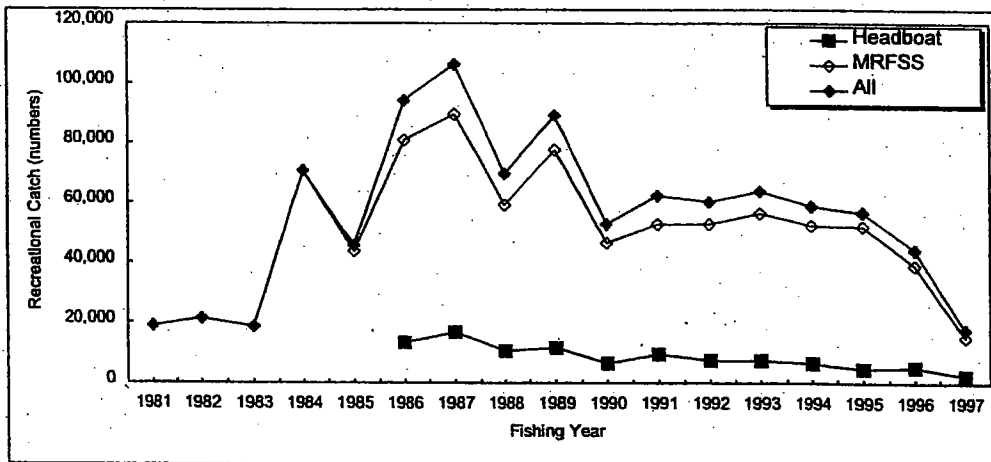
Appendix Table 3FY. Estimates of fractions of Atlantic Ocean greater amberjack caught and released by recreational fishermen by fishing mode and fishing year for the period 1981-1998 based on MFRSS data. Values for 1998 are preliminary. Charter boat data are included with headboats before 1986.

FY	Shore			Charter			Private			Charter/Headboat			All		
	Kept	Released	% Released	Kept	Released	% Released	Kept	Released	% Released	Kept	Released	% Released	Kept	Released	% Released
1982		1,278	100				16,847	13,447	44.39	4,521			21,368	14,725	40.8
1983							10,016	20,590	67.27	8,483	477	5.32	18,498	21,067	53.25
1984							42,517	24,887	36.92	28,153	2,064	6.83	70,670	26,951	27.61
1985				3,307	2,858	46.36	23,805	36,117	60.27	16,594	14,703	46.98	43,706	53,678	55.12
1986	4,253			43,400	12,880	22.89	33,186	40,492	54.96				80,839	53,372	39.77
1987	1,997			53,813	5,562	9.37	33,643	35,587	51.4				89,453	41,149	31.51
1988	355	3,369	90.47	37,952	8,912	19.02	20,818	16,908	44.82				59,125	29,189	33.05
1989	516	372	41.89	19,218	5,955	23.66	57,866	31,484	35.24				77,600	37,811	32.76
1990	5,743			26,083	4,632	15.08	14,573	11,596	44.31				46,399	16,228	25.91
1991	4,969	22,208	81.72	25,553	6,336	19.87	22,206	25,690	53.64				52,728	54,234	50.7
1992				22,211	5,019	18.43	30,612	41,668	57.65				52,823	46,687	46.92
1993	4,093	616	13.08	39,727	8,300	17.28	12,431	17,818	58.9				56,251	26,734	32.22
1994				30,534	10,047	24.76	21,671	9,025	29.4				52,205	19,072	26.76
1995				28,264	3,857	12.01	23,695	17,405	42.35				51,959	21,262	29.04
1996		2,964	100	25,206	4,328	14.65	13,753	19,638	58.81				38,959	26,930	40.87
1997		476	100	11,321	2,099	15.64	3,826	19,421	83.54				15,147	21,996	59.22
															29.65

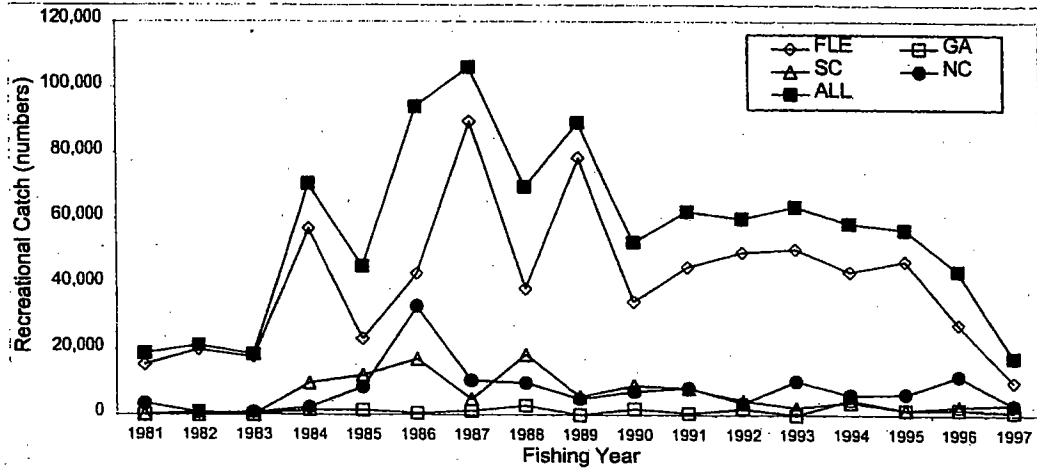
Appendix Figure 1FY. Reported commercial landings by fishing year for Atlantic Ocean greater amberjack in the southeastern United States, 1962-1997. Landings from the Florida Keys are included in the Atlantic stock. The 1997 values are preliminary. Units are whole weight (pounds).



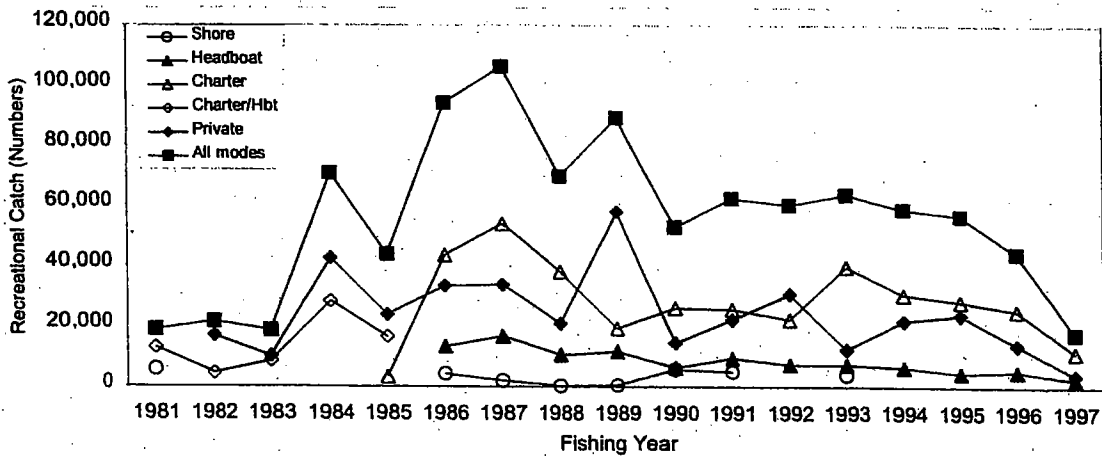
Appendix Figure 2FY. Estimated recreational catch (A+B1) of the Atlantic Ocean greater amberjack for the southeastern United States by source and fishing year, 1981-1997. Values for fishing year 1997 are preliminary. Units are number of fish. MRFSS includes Monroe county recreational catches (i.e., Florida Keys) in the Florida West coast catch estimates; MRFSS estimates in this figure only include catches from Florida East coast.



Appendix Figure 3aFY. Estimated recreational catch (A+B1) of the Atlantic Ocean greater amberjack for the southeastern United States by state and fishing year, 1981-1997. Values for fishing year 1997 are preliminary. Units are number of fish. MRFSS includes Monroe county recreational catches (i.e., Florida Keys) in the Florida West coast catch estimates; MRFSS estimates in this figure only include catches from Florida East coast.

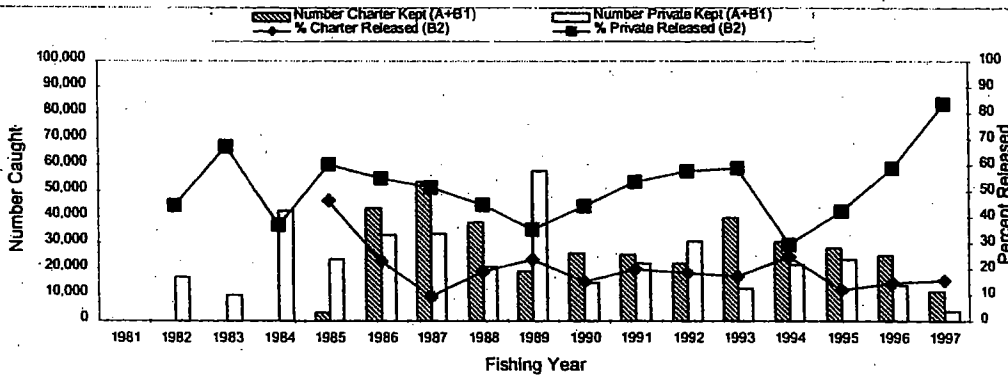


Appendix Figure 3bFY. Estimated recreational catch (A+B) of the Atlantic Ocean greater amberjack for the southeastern United States by fishery and fishing year, 1981-1997. Values for fishing year 1997 are preliminary. Units are number of fish. MRFSS includes Monroe county recreational catches (i.e., Florida Keys) in the Florida West Coast catch estimates; MRFSS estimates in this figure only include catches from Florida East coast.

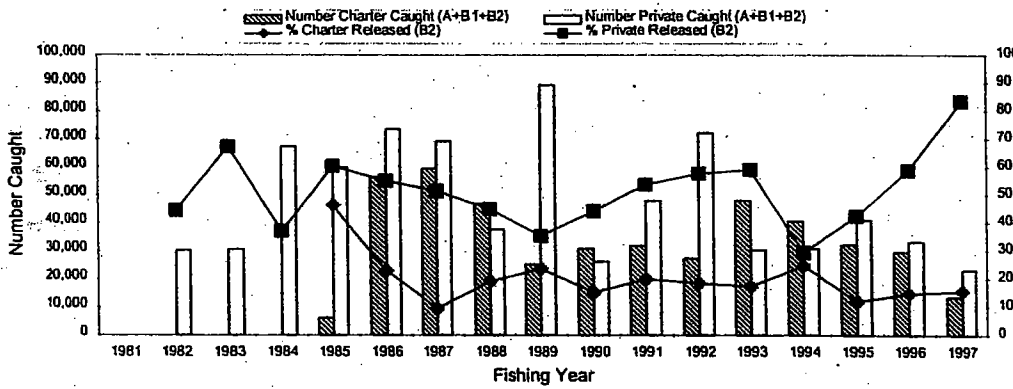


Appendix Figure 4FY. Estimated recreational harvest a) A+ B1 and b)A+ B1 +B2 and disposition (percent released) of Atlantic Ocean greater amberjack by fishing year, based on MRFSS data. Values for fishing year 1997 are preliminary. Percent released equals number released (B2) divided by total caught (A+B1+B2). MRFSS includes Monroe county recreational catches (i.e., Florida Keys) in the Florida West coast catch estimates; MRFSS estimates in this figure only include catches from Florida East coast.

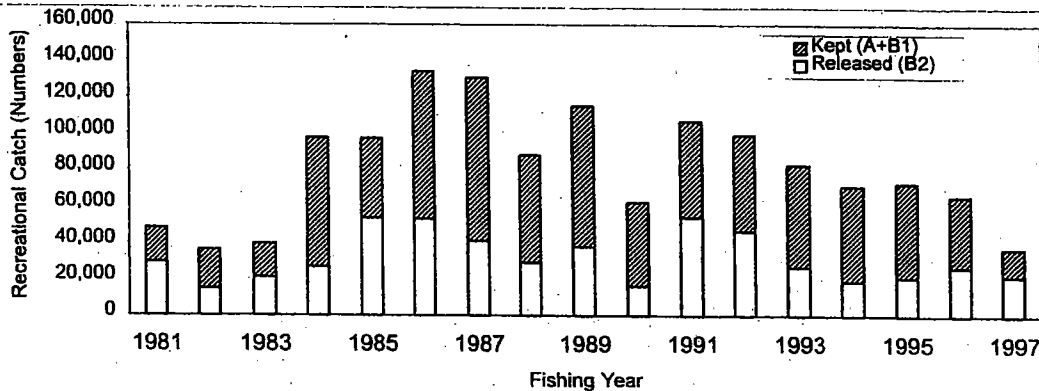
a)



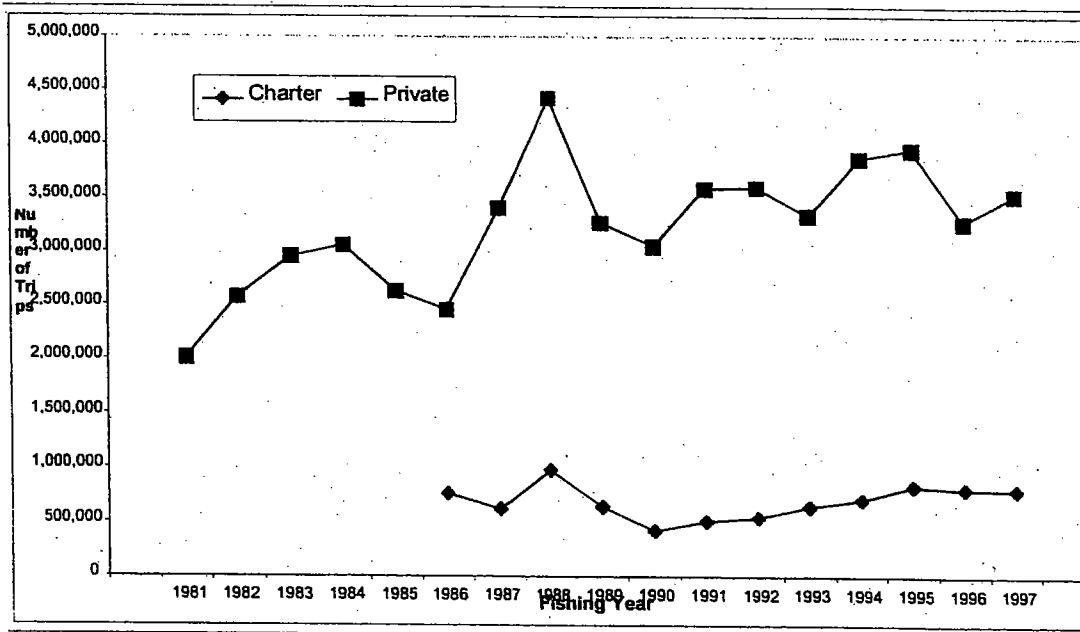
b)



Appendix Figure 5FY. Disposition of greater amberjack caught by recreational fishermen from the Atlantic Ocean by all modes combined and fishing year, 1981-1997 based on MRFSS data. Values from 1997 are preliminary. MRFSS includes Monroe county recreational catches (i.e., Florida Keys) in the Florida West coast catch estimates; MRFSS estimates in this figure only include catches from Florida East coast.



Appendix Figure 6FY. Estimated number of fishing trips by mode and fishing years in the Atlantic Ocean based on the MRFSS survey. The 1997 fishig year values are preliminary.



Appendix Figure 7. Commercial catch sizing program protocol

```

**** Program com_szct sizes the 1999 Atlantic GAJ Catch****
** PART I Reads the combined length frequency sample which has
*     Samples stored by Sector, Calendar Year, Mode and State.
*
** Part II Makes the Atlantic Greater Amberjack catch at size file.
*
parameter (nsects=3,ify=80,ily=98,nmodes=10,nstates=9,nlens=200,
-mn=10,mx=199)

real a(2), b(2)    ! greater amberjack weight length equation parameters
real avwt,ave     ! average weight at length (lbs)
real smwt         ! sampled weight (lbs)
real cthlen(nlens) ! # fish at length in catch (estimated)

integer st_plp
integer length(nlens), len_fin(nlens)
integer lfreq(nsects,ify:ily,nmodes,nstates,nlens)
real it(ify:ily), it2(ify:ily), itcat(ify:ily)

character rec*52,record*640,sector*3,aamode*8

a(1)=1.2E-7    ! manooch atl, hbts and hl; wgt in kg and fl in mm
b(1)=2.677

* a(1)=6.40E-5 ! burch satl; wgt in lbs and len in fl cm
* b(1)=2.842   ! used in previous 1996 assessment

a(2)=5.3E-8    ! manooch gulf from hbts; wgt in kg and fl mm
b(2)=2.81

isubreg=1      ! This is for Atlantic Stock

open(1,file='d:\amjack\sizes\final.dat\smps_in.dat', ! file of lf smps.
-status='unknown')
* open(2,file='d:\amjack\sizes\final.dat\atlsiz.all', ! output file of lf's
* -status='unknown')

isub=1

do2isect=1,nsects
do2iy=ify,ily
do2mode=1,nmodes
do2ist=1,nstates
do3l=1,nlens
3 lfreq(isect,iy,mode,ist,l)=0
2 continue
ir=0
5 continue      ! Length frequency loop
do4l=1,200
4 length(l)=0
*
* Process the Sample Length Frequency Records

```

Appendix Figure 7. (Cont.)

```

read(1,fmt='(a640,t1,i2,t7,i2,t12,i2,t33,a3,t36,i5,200i3),
-recl=640)',end=10)
-record,iy,st_plp,mode,sector,nlen,(length(j),j=1,nlens) ! process smp lfs
if(length(200).gt.0)then
  print*,iy,st_plp,mode,nlen,length(200)
  length(199)=length(199) + length(200)
else
endif

ir=ir+1

* delete samples before 1973 and after 1998 or unknown fisheries
if(iy.lt.ify.or.iy.gt.iyy.or.mode.eq.0.or.sector.eq.'UNK')goto5
if(sector.eq.'REC')then ! code the sector rec(1) com (2) hboat(3)
  isect=1
else if(sector.eq.'COM')then
  isect=2
else if(sector.eq.'HBT')then
  isect=3
else
*   print*,"cant find sector for rec ",ir,iy,st_plp,mode,sector,length
  goto5
endif

*
* storing the sample length density by sector, year, mode, state and
* store the total number in length unit 200. These will get combined
* for some landings records.
*
*   print*,ir,isect,iy,mode,st_plp, nlen
*   goto5
*   if(isect.ne.2)goto5

do6len=mn,mx
l=len
nsamp=length(len)
lfreq(isect,iy,mode,st_plp,l)=lfreq(isect,iy,mode,st_plp,l)+nsamp
lfreq(isect,iy,mode,st_plp,200)=lfreq(isect,iy,mode,st_plp,200)+nsamp
6 continue
*   print*,ir,isect,iy,mode,st_plp,nlen
*   goto5

10 continue
Print*," Finished processing LF samples"

*
* Finished Loading the Length frequency records by sector,year,mode and state
*
*
*
*   Part II A (com) and B (rec)
*
* program sizcatch reads 2 files a)com yields and 2) rec catch in #'s &
* matches samples to yield or rec catch records. For com yield
* program uses average weight of sample record and computes total numbers
* caught and then outputs catch at length record. For rec catch program
* matches catch record to size freq record and outputs numbers caught at

```


Appendix Figure 7. (Cont.)

```

* length record. Note, #'s caught is estimated on rec catch...
*
* Note, in the 99 versionfile I read the com yld and the rec catch straight
* from the combined files, converting state and gear for the com yld
* and converting state and mode for the rec.
*
***** change file names on lu 3 *****
      open(3,file='d:\amjack\removals\com\atldgs99.can',status='unknown')
      open(5,file='d:\amjack\sizes\Sizefreq\com_ct.atl',status='unknown')
*****
*
* Part II A. Subpart 1. Processing the commercial landings records
*

100 continue
      isubreg=1      ! change for atl (1), gulf (2) *****
      isect=2       ! Com
      lu=3
      ir=0

102 continue      ! Read commercial yields
      do1011=1,nlens
      len_fin(1)=0
101 cthlen(1)=0.
      yield=0.
      pounds=0.
      catch=0
      mode=0

* Reading Commercial Landings
      read(3,104,end=352)rec,mm,iy,istlnd,iprt,idlr,iwater,igr,ispec,
      -ipounds
104  FORMAT(A52,T1,I2,2x,2i2,I3,2I4,I3,I4,T28,i8)
      ir=ir+1
      pounds=ipounds*1.
      if(iy.lt.ify.or.iy.gt.ily)goto102

      if(istlnd.ge.10.and.istlnd.le.12.and.iy.le.85)pounds=pounds*1.04
      yield = pounds

* Convert nmfs state code to plp state code for com, chk that only atl
* or only Gulf stock yld. Use istlnd and set to st_plp.
* should only have states 5-9 in this file. 5 is monroe county
*
      if(istlnd.eq.1)then          ! alabama
      st_plp=4
      else if(istlnd.eq.10)then   ! fle
      st_plp=6
      else if(istlnd.eq.11)then   ! flw
      st_plp=5
      else if(istlnd.eq.13)then   ! georgia
      st_plp=7
      else if(istlnd.eq.21)then   ! lousiana
      st_plp=2

```

Appendix Figure 7. (Cont.)

```

else if(istlnd.eq.27)then      ! mississippi
  st_plp=3

else if(istlnd.eq.36)then      ! north caroliana
  st_plp=9
else if(istlnd.eq.43)then      ! south carolina
  st_plp=8
else if(istlnd.eq.46)then      ! texas
  st_plp=1
else
  if(istlnd.eq.12)goto102
  print*," Cant find state code for com ldg. record ",ir,rec
  goto102      ! should kick out state 12 since it's in 10 or 11
endif
if (st_plp.le.4)print*,ir,rec ! Texas-Alabama shouldn't be in file
*
*
* set commercial landing mode according to gear code (igr) as:
* Com Hook and line, Com Dive, Com. BLL, and Com other (trammel net,trap, fish trawl (ot))
* Use same sas code as used in setting mode in the tip samples.
*
if(igr.ge.600.and.igr.le.666)then
  mode=5 ! hook and line
else if(igr.lt.600)then
  mode=6      ! other
else if(igr.gt.666)then
  if(igr.eq.760.or.igr.eq.943)then ! dive and spear
    mode=9
  else if(igr.eq.676.or.igr.eq.677)then ! bot ll
    mode=10
  else
    mode=6      ! gt 666 but not dive, spear or bot ll
  endif ! ends igr the 760 or 943
else
  mode=6
endif ! ends the igr gt 666 loop

*
  print*," Ldg rec is ",ir,isect,iy,mm,mode,igr,istlnd,st_plp,ipounds,pounds,yield
*
  if(mode.le.4.or.(mode.ge.7.and.mode.le.8)) ! i.e., sh, hb, ch, prv, trn, spec
*
  -print*," Ck. Com rec", ir,isect,iy,mm,mode,igr,istlnd,st_plp,ipounds,pounds,yiels
*
* Begins Sample Assignment Code according to the sector, year, mode, and state
*
* Begins Atlantic Stock Commercial Hand line Fishery Mode (5) Sample assigning.
*
  IF(mode.eq.5)then      ! Com Hl fishery Lndg. record      Mode 5
*
* Begins Florida West Coast Commercial Handline Mode      FLW
*
  IF(st_plp.eq.5)then      ! flw lndg
  if(iy.ge.91.and.iy.le.98.and.iy.ne.95)then ! Use flw only
    ist=5
    do1101=mn,mx
    len_fin(1)=len_fin(1) + lfreq(isect,iy,mode,ist,1)

```

Appendix Figure 7. (Cont.)

```

len_fin(200)=len_fin(200) + lfreq(isect,iy,mode,ist,1)
110 continue
else if(iy.eq.90.or.iy.eq.95)then          ! Use fle & flw
do115ist=5,6
do120l=mn,mx
len_fin(1)=len_fin(1) + lfreq(isect,iy,mode,ist,1)
len_fin(200)=len_fin(200) + lfreq(isect,iy,mode,ist,1)
120 continue
115 continue

else if(iy.ge.80.and.iy.le.89)then        ! Use all atl states
do125ist=5,9
do130l=mn,mx
len_fin(1)=len_fin(1) + lfreq(isect,iy,mode,ist,1)
len_fin(200)=len_fin(200) + lfreq(isect,iy,mode,ist,1)
130 continue
125 continue

else
print*,"Ck FLW HL ldgs record ",lu,ir,isect,mode,st_plp,yield
endif
* print*," Finished.FLW Com HL Ldg ",lu,ir,isect,mode,st_plp,yield,
*
* Ends FLW commercial landing section
*
* Next HL State goes here

* Begin FLE commercial landing section.          FLE
*
Else if(st_plp.eq.6)then ! Fle com ldg
if(iy.ge.90.and.iy.le.91)then          ! Use fle & flw smps
do135ist=5,6
do140l=mn,mx
len_fin(1)=len_fin(1) + lfreq(isect,iy,mode,ist,1)
len_fin(200)=len_fin(200) + lfreq(isect,iy,mode,ist,1)
140 continue
135 continue

else if(iy.ge.92.and.iy.le.98)then      ! Use fle only
ist=6
do145l=mn,mx
len_fin(1)=len_fin(1) + lfreq(isect,iy,mode,ist,1)
len_fin(200)=len_fin(200) + lfreq(isect,iy,mode,ist,1)
145 continue

else if(iy.ge.80.and.iy.le.89)then      ! Use all atl states
do150ist=5,9
do155l=mn,mx
len_fin(1)=len_fin(1) + lfreq(isect,iy,mode,ist,1)
len_fin(200)=len_fin(200) + lfreq(isect,iy,mode,ist,1)
155 continue
150 continue

```

Appendix Figure 7. (Cont.)

```

else
  print*,"Ck FLE HL ldgs record ",lu,ir,isect,mode,st_plp,yield
endif
*
  print*," Finished FLE Com HL Ldg ",lu,ir,isect,mode,st_plp,yield,
*
* End of Fle com landings
*
*
*
* Begin of Georgia Landings
*
  Else if(st_plp.eq.7)then ! Georgia commercial landing
  if(iy.ge.91.and.iy.le.94.or.iy.eq.97)then ! Use Georgia only
    ist=7
    do160l=mn,mx
    len_fin(1)=len_fin(1) + lfreq(isect,iy,mode,ist,1)
    len_fin(200)=len_fin(200) + lfreq(isect,iy,mode,ist,1)
160  continue

  else if(iy.ge.80.and.iy.le.90)then ! Use all atl states
*
  print*," at georgia, year is ",ir,iy,yield
  do165ist=5,9
  do170l=mn,mx
  len_fin(1)=len_fin(1) + lfreq(isect,iy,mode,ist,1)
  len_fin(200)=len_fin(200) + lfreq(isect,iy,mode,ist,1)
170  continue
165  continue

  else if(iy.ge.95.and.iy.ne.97)then ! use FLE and GA
  do172ist=6,7
  do175l=mn,mx
  len_fin(1)=len_fin(1) + lfreq(isect,iy,mode,ist,1)
  len_fin(200)=len_fin(200) + lfreq(isect,iy,mode,ist,1)
175  continue
172  continue
  else
  print*,"Ck Ga HL ldgs record ",lu,ir,isect,mode,st_plp,yield
endif
*
  Print*," Finished Ga Com HL Ldg ",lu,ir,isect,mode,st_plp,yield,
*
* End of Georgia comm. Landings
*
*
* Beginning of South Carolina com landings
*
  Else if(st_plp.eq.8)then ! South Carolina comm. landing
*
  print*," at scarol yer is ", lu,iy
  if(iy.ge.96)then
    ist=8 ! Use SC only
    do180l=mn,mx
    len_fin(1)=len_fin(1) + lfreq(isect,iy,mode,ist,1)
    len_fin(200)=len_fin(200) + lfreq(isect,iy,mode,ist,1)
180  continue

```

Appendix Figure 7. (Cont.)

```

else if(iy.ge.80.and.iy.le.89.or.iy.eq.91)then      ! Use all Atl states
  do185ist=5,9
  do190l=mn,mx
  len_fin(1)=len_fin(1) + lfreq(isect,iy,mode,ist,1)
  len_fin(200)=len_fin(200) + lfreq(isect,iy,mode,ist,1)
190  continue
185  continue

else if(iy.ge.92.and.iy.le.95.or.iy.eq.90)then
*                                     ! Use SC + NC
  do195ist=8,9
  do200l=mn,mx
  len_fin(1)=len_fin(1) + lfreq(isect,iy,mode,ist,1)
  len_fin(200)=len_fin(200) + lfreq(isect,iy,mode,ist,1)
200  continue
195  continue

else
  print*,"Ck Sc HL ldgs record ",lu,ir,isect,mode,st_plp,yield
endif
*   Print*," Finished SC Com HL Ldg ",lu,ir,isect,mode,st_plp,yield,
*
*
* Ends South Carolina com. landings
*
*
* Begin of North Carolina Com. Landings
*
  Else if(st_plp.eq.9)then      ! North Carolina com. landings
  if(iy.ge.90.and.iy.le.98)then      ! Use SC & NC
    do210ist=8,9
    do215l=mn,mx
    len_fin(1)=len_fin(1) + lfreq(isect,iy,mode,ist,1)
    len_fin(200)=len_fin(200) + lfreq(isect,iy,mode,ist,1)
215  continue
210  continue

  else if(iy.ge.80.and.iy.le.89)then      ! Use all Atl states
    do220ist=5,9
    do225l=mn,mx
    len_fin(1)=len_fin(1) + lfreq(isect,iy,mode,ist,1)
    len_fin(200)=len_fin(200) + lfreq(isect,iy,mode,ist,1)
225  continue
220  continue

  else
    print*,"Ck Nc Com. HL ldgs record ",lu,ir,isect,mode,st_plp,yield
    endif
*   Print*," Finished NC Com HL Ldg ",lu,ir,isect,mode,st_plp,yield,
*
*
* Ends North Carolina Commercial Landings records
* Ends Atlantic Stock Commercial Hook and Line Mode

```

Appendix Figure 7. (Cont.)

```

*
*
*   Print*," Finished Hook and line Ldg rec ", ir,iy,isect,mode,st_plp,yie

   Else ! This ends the State and Mode 5 loop for Com. HL
   Endif
*
*                               MODE 6
* Begins Atlantic Stock Commercial Other Modes (excluding Dive(9) & BLL (10))
*
*
*   Else if(mode.eq.6)then ! Commercial Other (excludign dive (9),
*                           bll (10). Includes fish trawl, trap,etc.
*                           ! Use commercial samps from all Atl states
*                           ! all modes but dive (9) or bll (10)
*
*       do240ist=5,9
*       do245imode=5,6
*       do250l=mn,mx
*       len_fin(1)=len_fin(1) + lfreq(isect,iy,imode,ist,1)
*       len_fin(200)=len_fin(200) + lfreq(isect,iy,imode,ist,1)
250   continue
245   continue
240   continue
*   Print*," Finished Other Com Ldg ",ir,isect,iy,mode,st_plp,yield
*
* Ends Commercial Other Mode Fishery (ot, trap, etc. but not hl or dive or bll)
*
*
*
* Begins Commercial Dive Landings                               Mode 9
*
*   Else if(mode.eq.9)then ! Dive commercial landing (ignore state)
*   if(iy.eq.93.or.iy.eq.96)then ! Use Dive from all Atl states
*       do260ist=5,9
*       do265l=mn,mx
*       len_fin(1)=len_fin(1) + lfreq(isect,iy,mode,ist,1)
*       len_fin(200)=len_fin(200) + lfreq(isect,iy,mode,ist,1)
265   continue
260   continue
*
*   else if(iy.le.92.or.iy.eq.94.or.iy.eq.95.or.iy.ge.97)then
*       do280imode=5,10
*       if(imode.eq.7.or.imode.eq.8)goto280 ! exclude tournament and sci.
*       do285ist=5,9
*       do290l=mn,mx
*       len_fin(1)=len_fin(1) + lfreq(isect,iy,imode,ist,1)
*       len_fin(200)=len_fin(200) + lfreq(isect,iy,imode,ist,1)
290   continue
285   continue
280   continue
*
*   else
*       print*,"Ck Com Dive Ldgs record ",ir,isect,mode,st_plp,yield
*   endif

```

Appendix Figure 7. (Cont.)

```

*   Print*, " Finished Dive Ldgs record ",ir,isect,iy,mode,st_plp,yield
*
* Ends Com. Dive Landings
*
*
* Beginning Bottom Longline Landings                               Mode 10
*
  Else if(mode.eq.10)then ! Bottom Longline
    if(iy.eq.92.or.iy.eq.93)then ! Use Bot LL all Atl states
      do300ist=5,9
      do305l=mn,mx
      len_fin(1)=len_fin(1) + lfreq(isect,iy,mode,ist,1)
      len_fin(200)=len_fin(200) + lfreq(isect,iy,mode,ist,1)
305  continue
300  continue

    else if(iy.le.91.or.iy.ge.94)then ! Use Com. Hl, other, bll,
                                     ! exclude dive, sci,tourn
      do320ist=5,9
      do325imode=5,10
      if(imode.ge.7.and.imode.le.9)goto325 ! exclude tourn,sci
      do330l=mn,mx
      len_fin(1)=len_fin(1) + lfreq(isect,iy,imode,ist,1)
      len_fin(200)=len_fin(200) + lfreq(isect,iy,imode,ist,1)
330  continue
325  continue
320  continue

    else
      print*,"Ck Bot. LL ldgs record ",lu,ir,isect,mode,st_plp,yield
    endif
*   Print*, " Finished Bot LL ldgs record ", ir,isect,iy,mode,st_plp,yield
*
*
* next Mode goes here
*
  Else ! This ends the Com. Sector Loop Loop (modes 5,6,9,10)
    Print*, "CHECK Mode for COM LNDG RECORD ON RECORD ",ir,iy,mm,istlnd,st_plp,mode,igr,yield
  Endif
*
* Check for Landings that did not have a sample for ---- should not occur
*
*
350  continue ! This is label for going to portion of code to output
*
      Commercial Landing Catch at size record
*
*
* Ending Part II.A. Subpart 1. COMMERCIAL LANDINGS SAMPLE ASSIGNMENT
* Finished Processing all com lndgs records; end =999 lu 1 to lu=2 and
* since lu=2 prg. comes to recreational catches. Headboat is in lu 2 also.

```

Appendix Figure 7. (Cont.)

```

*
*
* Part II. B. Subpart 2. Output Commercial Landing Catch Length Density record
*
* Finished combining the samples over state or mode within a sector and
* year... Ready to compute the sample average weight .... Have to do it
* for each separate catch because of the combining over samples...
Appendix Figure 7. (Cont.)

```

```

* In the 1996 code I used only the annual density (by sector and year)
* across all modes and states so could use the sample average weight across
* the all states and modes.
*
* Now Compute average weight and storing by sector, year, mode, & state
* Only need average weight (for sample) for com yields so numbers caught
* can be computed..
*

```

```

freq=0.
cthnum=0.      ! this is the catch number total
rnf=0.        ! this is the sample size
wglbs=0.      ! this is the average weight (lbs) at length
wgkg=0.       ! this is the average weight (kg) at length
smpwgt=0.     ! this is the sampled weight
avwt=0.       ! this is the sample average weight
rnf=float(len_fin(200)) ! # fish in the sector, iy, mode, st_plp
ave=0.
smwt=0.

if(len_fin(200).le.0.and.iy.gt.84)then
  print*,ir, isect, iy, mm, mode, st_plp, yield, len_fin(200)
else
endif

if(len_fin(200).le.0)goto525
* print*, len_fin
minlen=199
maxlen=10
* print*, " Computing Aviewgt ", ir, iy, isect, mm,
* -st_plp, mode, yield, rnf, len_fin(200), avwt, smpwgt

do500l=mn, mx      ! compute and store avewgt by sector, iy, mode, st_plp
* find min and max len for write out
if(len_fin(l).le.0)goto500
minlen=MINO(minlen, l)
maxlen=MAXO(maxlen, l)

forkmm=1 * 10.
forkcm=1 * 1.

if(isubreg.eq.1)then
wgtkg=a(isubreg)*forkmm**b(isubreg) ! at l. w(kg)=a*f1(mm)**b curve
wglbs=wgtkg*2.20468

```


Appendix Figure 7. (Cont.)

```

else if(isubreg.eq.2)then
  wgtkg=a(isubreg)*forkmm**b(isubreg) ! Gulf w(kg)=a*f1(mm)**b curve
  wglbs=wgtkg*2.20468

  else
    print*," cant find isubreg for ave wgt calculation ",ir,record
  endif
  freq=len_fin(1) * 1.
  avwt=avwt + wglbs * freq/rnf ! avwt of sampled fish
  smwt=smwt + wglbs ! summing up the sample wgt. in lbs.
*   print*,1,len_fin(1),forkcm,forkmm,wgtkg,wglbs,len_fin(1),avwt,smwt

500  continue
    smpwgt=smwt          ! this is the total wgt for the catch
    ave=avwt

*
*           ! output for com. rec. and hboat
*           ! can compare this wgt to rpt'd. yield for com. only
  if(isect.eq.2)then    ! Commercial yield record only
*   print*,yield,avwt,yield/ave
    catch=yield/ave
  else
    print*," Ck Sector code on Com Ldg. code At Write",lu,ir,iy,istplp,istlnd,yield
  endif
*
* Here for the Com yield have the combined length
* Sample density and ready to output the catch at length length density record
* note: have month on com.yld record and wave on rec. catch; on rec mm=wave
*
  freq=0.
  do510l=minlen,maxlen !
    freq=len_fin(1) * 1.
    cthlen(1)=catch * freq / rnf
    cthnum=cthnum+cthlen(1)
    it(iy)=it(iy) + cthlen(1) ! total catch by year
    itcat(iy)=itcat(iy)+cthlen(1)
*   print*,1,len_fin(1),cthlen(1)
510  continue

    diff=catch-cthnum
    print*,isect,iy,mm,mode,st_plp,yield,catch,cthnum,diff,rnf,
-   minlen,maxlen,avwt,smpwgt
    it2(iy)=it2(iy)+yield ! total com yield by year
*   if(iy.eq.80.or.iy.eq.89)print*,cthnum,yield,catch,ave,smpwgt

    write(5,520)isect,iy,mm,mode,st_plp,yield,catch,rnf,minlen,maxlen,
-   avwt,smpwgt,(cthlen(1),l=minlen,maxlen)
520  format(5i3,2f15.2,15x,f10.0,2i5,f6.2,f15.2,20(/10f15.4))

525  continue
    do530l=1,200          ! Clear out nal(1) array
530  cthlen(l)=0

    do540l=1,nlens       ! clear out main arrays; there can be > 1
540  len_fin(l)=0       ! ldg rec. per sect, mode,ist because of

```

Appendix Figure 7. (Cont.)

```
*                               ! port and water
    catch=0.
    yield=0.
    goto102                       ! Loops to new com ldg. record
352 continue
*
* End of Processsing Commercial Yields
    do580iy=ify,ily
580 print*,iy,it(iy),itcat(iy),it2(iy)
    stop
    end
```

Appendix Figure 8. Recreational Catch Sizing Program Protocol.

```

*
**** Program rec_szct sizes the 1999 Atlantic GAJ Recreational Catches ****
*   This includes headboat,
*
** PART I Reads the combined length frequency sample which has
*   Samples stored by Sector, Calendar Year, Mode and State.
*
** Part II Makes the Atlantic Greater Amberjack catch at size file.
*
parameter (nsects=3,ify=80,ily=98,nmodes=11,nstates=9,nlens=200,
-mn=10,mx=199,relmort=0.5)

real a(2), b(2)    ! greater amberjack weight length equation parameters
real avwt,ave     ! average weight at length (lbs)
real smwt         ! sampled weight (lbs)
real cthlen(nlens) ! # fish at length in catch (estimated)

integer st_plp, plp_mode
integer length(nlens), len_fin(nlens)
integer lfreq(nsects,ify:ily,nmodes,nstates,nlens)
real it(ify:ily), it2(ify:ily), icat(ify:ily), newic(ify:ily)

character rec*52,record*640,sector*3,aamode*8

a(1)=1.2E-7    ! manooch atl, hbts and hl; wgt in kg and fl in mm
b(1)=2.677

*   a(1)=6.40E-5 ! burch satl; wgt in lbs and len in fl cm
*   b(1)=2.842   ! used in previous 1996 assessment

a(2)=5.3E-8   ! manooch gulf from hbts; wgt in kg and fl mm
b(2)=2.81

isubreg=1     ! This is for Atlantic Stock

open(1,file='d:\amjack\sizes\final.dat\smps_in.dat', ! file of lf smps.
-status='unknown')

isub=1

do2isect=1,nsects
do2iy=ify,ily
do2mode=1,nmodes
do2ist=1,nstates
do3l=1,nlens
3 lfreq(isect,iy,mode,ist,l)=0
2 continue
ir=0

5 continue    ! Length frequency loop
do4l=1,200

```

Appendix Figure 8. (cont.)

```

len_fin(200)=0
4 length(1)=0

*
* Process the Sample Length Frequency Records
*
  read(1,fmt='(a640,t1,i2,t7,i2,t12,i2,t33,a3,t36,i5,200i3),
-recl=640)',end=10)
-record,iy,st_plp,mode,sector,nlen,(length(j),j=1,nlens) ! process smp lfs

  if(length(200).gt.0)then
    print*,iy,st_plp,mode,nlen,length(200)
    length(199)=length(199) + length(200)
    length(200)=0
  else
    endif
  ir=ir+1

* delete samples before 1980 and after 1998 or unknown fisheries
  if(iy.lt.ify.or.iy.gt.ily.or.mode.eq.0.or.sector.eq.'UNK')goto5

  if(sector.eq.'REC')then ! code the sector rec(1) com (2) hboat(3)
    isect=1
  else if(sector.eq.'COM')then
Appendix Figure 8. (Cont.)
isect=2
  else if(sector.eq.'HBT')then
    isect=3
  else
*   print*,"cant find sector for rec ",ir,iy,st_plp,mode,sector,length
    goto5
  endif

*
* storing the sample length density by sector, year, mode, state and
* store the total number in length unit 200. These will get combined
* for some landings records
*
*   print*,ir,isect,iy,mode,st_plp, nlen
  if(isect.eq.2.or.isect.eq.0)goto5 ! Sector 2 is com; sector 0 is unknown

  do6len=mn,mx
  l=len
  nsamp=length(len)
  lfreq(isect,iy,mode,st_plp,l)=lfreq(isect,iy,mode,st_plp,l)+nsamp
  lfreq(isect,iy,mode,st_plp,200)=lfreq(isect,iy,mode,st_plp,200)+nsamp
6 continue
*   print*,ir,isect,iy,mode,st_plp,nlen
  goto5

10 continue
  Print*," Finished processing LF samples"
*
* Finished Loading the Length frequency records by sector,year,mode and state
*

```

Appendix Figure 8. (cont.)

```

*
*
*
*       Part II A (com) and B (rec).
*
* program rec_szct reads file # 2 (lu 4) of rec catch in #'s &
* matches samples to yield or rec catch records. For com yield
* program uses average weight of sample record and computes total numbers
* caught and then outputs catch at length record. For rec catch program
* matches catch record to size freq record and outputs numbers caught at
* length record. Note, #'s caught is estimated on rec catch....
*
* Note, in the 99 versionfile I read the com yld and the rec catch straight
* from the combined files, converting state and gear for the com yld
* and converting state and mode for the rec.
*
***** change file names on lu 4 *****
      open(4,file='d:\amjack\removals\nosale\catches\rec_cth.99',
      -status='unknown')
      open(5,file='d:\amjack\sizes\sizefreq\rec_ct05.atl',status='unknown')
*****
*
* Part II B. Subpart 1. Process Recreational Catch records
* Have number caught (a+b1) and also b2 on MRFSS records. Need to find
* samples and ouput density.
*
599 continue
      isubreg=1          ! Atlantic stock only
      lu=4              ! PROCESSING REC CATCHES NOW
      ir=0

      do5951=1,nlens
      len_fin(1)=0
595  cthlen(1)=0.

      yield=0.
      catch=0.
      b2cat=0.

600 continue
      read(4,602,end=999)iy,iwave,mm,istplp,istate,izone,
      -plp_mode,catch,b2cat
602  format(10x,6i2,9x,i1,2f15.4)
      icat(iy)=icat(iy) + catch + b2cat * relmort
      ir=ir+1
*
* store new variable "ab1_b2" equal to catch + (b2cat * relmort)
*
      ab1_b2 = catch + (b2cat * relmort) !!!!! NOTE RELMORT VALUE
      mm=iwave          ! Set mm=iwave here and keep on ouput record

* Note here I made a new file (after trouble reading earlier file) of just

```

Appendix Figure 8. (cont.)

```

* the gaj catches from the atlantic; so no selections needed- chg. for gulf
*
* Code For Assigning Rec (shore, priv, chart) Hboat Samples Goes Here....
* At this point have catch in numbers just need to find the samples
* we need for the specific sector, year, mode, and state. Then
* compute wgt and distribute the catch at length

* Set sub region for catch using state and delete all but Atlantic catches
* SUB REGION VBL ON REC CATCH IS CALLED 'SUB'
*
  st_plp=istplp

*   if(istplp.le.5)then    ! Deleting flw catches, cant select Monroe county only
*     isub=2    ! gom
*   else if(istplp.ge.6.and.istplp.le.9)then
*     isub=1    ! atl
*   else if(istplp.ge.10.and.istplp.le.19)then
*     isub=3    ! n of nc
*     if(isub.eq.3)goto600
*   else
*     print*," cant find state code ", source,ir,iy,iwave,istplp,catch,b2cat
*   endif
*   if(isub.ne.1)goto600    ! Change for gulf (2) or atl (1)
*
* Check Recreational Catch for shore (1), hboat (2), charter (3),
* and private (4) and ch/py (5) mode catches
*
  isect=1    ! Initially set sector to REC
  mode=plp_mode
  if(plp_mode.eq.2)isect=3    ! Resetting hb catches to sector 3
  if(plp_mode.eq.5)mode=11    ! resetting plp ch/py to mode 11
*
* Print*," Starting to go after next catch ",
* -ir,isect,iy,iwave,mm,istplp,st_plp,plp_mode,mode,catch,b2cat
*
* Begin Sample Assignment based on shore, private, charter, hboat

IF(mode.eq.2)then    ! Headboat catches    ! Mode 2 Headboat
if(st_plp.eq.5.or.st_plp.eq.6)then    ! use Flw and Flw
if((iy.ge.81.and.iy.le.90).and.iy.ne.88.or.iy.eq.92)then
do800ist=5,6
do805l=mn,mx
len_fin(1)=len_fin(1) + lfreq(isect,iy,mode,ist,1)
len_fin(200)=len_fin(200) + lfreq(isect,iy,mode,ist,1)
805 continue
800 continue

else if(iy.eq.88.or.iy.ge.91.and.iy.ne.92)then ! Use all Atl states
do807ist=5,9
do810l=mn,mx
len_fin(1)=len_fin(1) + lfreq(isect,iy,mode,ist,1)

```

Appendix Figure 8. (cont.)

```

len_fin(200)=len_fin(200) + lfreq(isect,iy,mode,ist,1)
810 continue
807 continue

else ! Ends year loop for Fle Flw hboat mode
Print*,"Ck Fle/flw hb catch for year",lu,ir,iy,isect,mode,st_plp,
catch,b2cat
endif
* Print*," Finished Fle/Flw Headboat Catch",ir,isect,mode,st_plp,catch,b2cat
*
* Ends Fle and Flw headboat Catch Assignments
*
*
* Begin Georgia (7), South Carolina (8) and North Carolina headboat (9)
*
Else if(st_plp.ge.7.and.st_plp.le.9)then ! Use all Atl states
! by year
do820ist=5,9
do825l=mn,mx
len_fin(1)=len_fin(1) + lfreq(isect,iy,mode,ist,1)
len_fin(200)=len_fin(200) + lfreq(isect,iy,mode,ist,1)
825 continue
820 continue
* Print*," Finished Ga, Sc, or Nc Headboat Catch ", ir,isect,mode,
-st_plp,catch,b2cat
*
Else ! End state loop on Hboat mode
Print*,"Ck. Hb Mode for state ", lu,ir,isect,mode,st_plp,catch,b2cat
Endif
*
* This ends FLW, FLE, GA, SC, and NC headboat and this ends ALL HEADBOAT Catch
*
* Begin Recreational Shore (mode 1), Charter (mode 3), and Private (mode 4)
* catch sample assignment
*
Else if(mode.eq.3)then ! Charterboat catches Mode 3 (ch)
if(iy.eq.87.or.iy.eq.89.or.(iy.ge.91.and.iy.le.94).or.iy.eq.98)then
! Use only cb across states
do830ist=5,9
do840l=mn,mx
len_fin(1)=len_fin(1) + lfreq(isect,iy,mode,ist,1)
len_fin(200)=len_fin(200) + lfreq(isect,iy,mode,ist,1)
840 continue
830 continue

else if(iy.ge.81.and.iy.le.86.or.iy.eq.88.or.iy.eq.90.or.
iy.ge.95.and.iy.le.97)then ! use ch + private
! all atl states
do850imode=3,4
do855ist=5,9
do860l=mn,mx

```

Appendix Figure 8. (cont.)

```

len_fin(1)=len_fin(1) + lfreq(isect,iy,imode,ist,1)
len_fin(200)=len_fin(200) + lfreq(isect,iy,imode,ist,1)
860  continue
855  continue
850  continue

else    ! Ends year loop for charter mode
  print*,"Ck Charter catch for year",lu,ir,isect,mode,st_plp,catch,b2
endif
*   Print*," Finished Charterboat Catch",ir,isect,mode,st_plp,catch,b2cat
*
* Ends Charterboat catch assignments
*
*
* Begins Private boat Recreational Catch Sample Assignments
(pr)
*
  Else if(mode.eq.4)then    ! Private boat catches, Use ch and priv. all states
    do865imode=3,4
    do870ist=5,9
    do875l=mn,mx
    len_fin(1)=len_fin(1) + lfreq(isect,iy,imode,ist,1)
    len_fin(200)=len_fin(200) + lfreq(isect,iy,imode,ist,1)
875  continue
870  continue
865  continue
*   Print*," Finished Private boat fishery Catch",ir,isect,mode,st_plp,catch,b2cat
*
*
* Ends Private boat fishery catch assignments
*
*
* Begins Shore Recreational Fishery Catch Sample Assignments    Mode 1 (sh)
*
  Else if(mode.eq.1)then    ! shore fishermen; Use All modes, all states
    do880imode=1,4
    do885ist=5,9
    do890l=mn,mx
    len_fin(1)=len_fin(1) + lfreq(isect,iy,imode,ist,1)
    len_fin(200)=len_fin(200) + lfreq(isect,iy,imode,ist,1)
890  continue
885  continue
880  continue
*   Print*," Finished Shore fishery Catch",ir,isect,mode,st_plp,catch,b2cat
*
*
* Ends Shore Catches
*
*
* Begins Charter/Party Catches....
  Else if(mode.eq.11)then    ! Have earlier charter/pty catch

```


Appendix Figure 8. (cont.)

```

wgkg=0.      ! this is the average weight (kg ) at length
smpwgt=0.    ! this is the sampled weight
avwt=0.      ! this is the sample average weight
rnf=float(len_fin(200)) ! # fish in the sector, iy, mode, st_plp
ave=0.
smwt=0.
ctnew=0.
minlen=199
maxlen=10

*   print*, " Computing Avewgt  ", ir, iy, isect, mm,
*   -st_plp, mode, yield, rnf, len_fin(200), avwt, smpwgt

if(len_fin(200).le.0)then
  print*, "Ck catch # ", ir, isect, iy, mm, plp_mode, mode, st_plp, catch, b2cat,
  - len_fin(200)
else
endif

if(len_fin(200).le.0)goto1025

do1000l=mn, mx      ! compute and store avewgt by sector, iy, mode, st_plp
* find min and max len for write out
if(len_fin(l).le.0)goto1000
  minlen=MIN0(minlen, l)
  maxlen=MAX0(maxlen, l)

  forkmm=l * 10.
  forkcm=l * 1.

  if(isubreg.eq.1)then
    wgtkg=a(isubreg)*forkmm**b(isubreg) ! atl. w(kg)=a*f1(mm)**b curve
    wglbs=wgtkg*2.20468

  else if(isubreg.eq.2)then
    wgtkg=a(isubreg)*forkmm**b(isubreg) ! Gulf w(kg)=a*f1(mm)**b curve
    wglbs=wgtkg*2.20468

  else
    print*, " cant find isubreg for ave wgt calculation ", ir, record
  endif

  avwt=avwt + wglbs * len_fin(l)/rnf ! check next 6 lines
  smwt=smwt + wglbs ! summing up the sample wgt. in lbs.
  print*, l, len_fin(l), forkcm, forkmm, wgtkg, wglbs, len_fin(l), avwt, smwt
1000 continue
if(len_fin(200).le.0)print*, "Ck rec # ", ir, isect, iy, mm, plp_mode, mode,
- st_plp, catch, b2cat
  smpwgt=smwt      ! this is the total wgt for the catch
  ave=avwt

*                   ! output for com. rec. and hboat
*                   ! can compare this wgt to rpt'd. yield for com. only
if(isect.eq.2)then      ! Commercial yield record only

```

Appendix Figure 8. (cont.)

```

print*,"CK sector on catch # ",ir,isect,iy,mm,st_plp,plp_mode,mode,catch,b2cat
      ! after have the cthlen(1) array
else
  if(isect.ne.1.and.isect.ne.3)
  - print*," Ck Sector code on Com Ldg. code At Write",lu,ir,iy,istplp,
  - istlnd,yield
endif
*
* a) For the Com yield have the combined length
* Sample density and ready to output the catch at length length density record
* note: have month on com.yld record and wave on rec. catch; on rec mm=wave
*
* b) For the Recreational or Headboat catch have the combined length
* Sample density and ready to output the catch at length length density record
* NOTE month on com.yld record and wave on rec. catch; on rec mm=wave
* So here I output the MRDFSS Estimated CATCH and also the B2 Catch
*
*   print*,isect,iy,mm,mode,st_plp,yldrec,catch,rnf,
*   -minlen,maxlen,avwt,smpwgt, b2cat, ab1_b2 ! changed re b2cat
***** IMPORTANT *****
* use ab1_b2 catch variable to compute catch at length (array cthlen(1)
* here instead of catch computed after read in; see line 602
*****
do1010l=minlen,maxlen !
*   if(iy.eq.81.and.isect.eq.1)print*,ir,iy,isect,catch,b2cat,ab1_b2
   cthlen(1)=ab1_b2 * len_fin(1) / rnf ! change made re b2
   cthnum=cthnum+cthlen(1)
   total=total+cthlen(1)
   it(iy)=it(iy) + cthlen(1) ! total catch by year
* compute yield for the recreational catch using the w = a * L ** b
  forkmm=1 * 10.
  forkcm=1 * 1.
  if(isubreg.eq.1)then
    wgtkg=a(isubreg)*forkmm**b(isubreg) ! atl. w(kg)=a*f1(mm)**b curve
    wglbs=wgtkg*2.20468
  else if(isubreg.eq.2)then
    wgtkg=a(isubreg)*forkmm**b(isubreg) ! Gulf w(kg)=a*f1(mm)**b curve
    wglbs=wgtkg*2.20468
  else
    print*," cant find isubreg for ave wgt calculation ",ir,record
  endif
  yldrec=yldrec + wglbs * cthlen(1)
*   print*,l,len_fin(1),cthlen(1),yldrec
1010 continue
   ctnew=yldrec/ave
   it2(iy)=it2(iy)+yldrec ! total est'd rec yield by year
   diff=ab1_b2 - total ! chg made based on b2cat
*   print*,ir,isect,iy,mode,catch,cthnum,total,diff,b2cat,ab1_b2 ! chg.

```

Appendix Figure 8. (cont.)

```

*      print*,ir,isect,iy,mm,plp_mode,mode,st_plp,yldrec,catch,b2cat,rnf,
*      - minlen,maxlen,avwt,len_fin(200),smpwgt,cthnum,ctnew,ave,smpwgt,
*      - ab1_b2      ! chg. made basd on b2cat
      idif=ab1_b2-cthnum      ! note change made re b2cat
      if(idif.lt.0.or.idif.gt.0)print*,"ck rec for catch total ",ir,isect,iy,mm,
      - plp_mode,mode,st_plp,catch,cthnum,ab1_b2, b2cat.

      newic(iy)=newic(iy) + ab1_b2 ! change made re b2cat
      write(5,1020)isect,iy,mm,mode,st_plp,yldrec,catch,b2cat,rnf,
      - minlen,maxlen,avwt,smpwgt,(cthlen(1),1=minlen,maxlen)
1020  format(5i3,3f15.2,f10.0,2i5,f6.2,f15.2,20(/10f15.4))

1025  continue
      if(len_fin(200).le.0)print*,"check out rec ",ir,isect,iy,mm,plp_mode,
      - mode,st_plp,catch,b2cat,rnf,minlen,maxlen,avwt,smpwgt
      do1030l=1,nlens      ! Clear out nal(1) array
1030  cthlen(l)=0

      do1040l=1,nlens      ! clear out main arrays; there can be > 1
1040  len_fin(l)=0      ! ldg rec. per sect, mode,ist because of
*                      ! port and water

      total=0.
      catch=0.
      ab1_b2=0.
*      yield=0.
      yldrec=0.
      goto600      ! Loops to rec ldg. record

*
* End of Processsing Recreational Catches
999  continue

      do1050iy=ify,ily
1050  print*,iy,icat(iy),it(iy),newic(iy),it2(iy)

      stop
      end

```